BULLETIN OF THE

TAYLOR SOCIETY

AN INTERNATIONAL SOCIETY TO PROMOTE THE SCIENCE
AND THE ART OF ADMINISTRATION AND OF MANAGEMENT

Labor's Ideals Concerning Management

By WILLIAM GREEN
President, The American Federation of Labor

A NOTEWORTHY address emphasizing the desirability and possibility of union-management cooperation in the development of better management.— Page 241.

LIBRARY OF CONGRESS
FEB 1 1926
PERIODICAL DIVISION

Engineering Societies Building
29 W. Thirty-Ninth St.
New York

DECEMBER, 1925 VOL. X, NO. 6

Officers of the Taylor Society

President...............Percy S. Brown, Corona Typewriter Company, Inc., Groton, N. Y. (1926)
Vice-President...........Howard Coonley, Walworth Company, Boston, Mass. (1927)
Vice-President...........Henry P. Kendall, Kendall Mills, Inc., Boston, Mass. (1926)
Treasurer...............Edward W. Clark, 3d, E. W. Clark & Co., Philadelphia, Pa. (1926)
Managing Director.......Harlow S. Person, Taylor Society, 29 W. 39th St., New York.
Ass't Managing Director..Ruth Reticker, Taylor Society, 29 W. 39th St., New York.

Board of Directors

All the officers *ex-officio*, and

C. Leslie Barnum, American Radiator Company, New York. (1926)

Nathaniel G. Burleigh, Amos Tuck School of Dartmouth College, Hanover, N. H. (1926)

Lillian M. Gilbreth, Gilbreth, Inc., Montclair, N. J. (1927)

H. K. Hathaway, Industrial Association, San Francisco, Cal. (1927)

Past Presidents

James Mapes Dodge, Link-Belt Company, Philadelphia (deceased)

Harlow S. Person, Amos Tuck School, Hanover, N. H.

J. E. Otterson, Western Electric Company, New York.

Henry S. Dennison, Dennison Manufacturing Co., Framingham, Mass.

Richard A. Feiss, Dennison Manufacturing Co., Framingham, Mass.

Local Sections and Foreign Branches

Eastern Massachusetts

Secretary-Treasurer: T. A. Smythe, Dennison Manufacturing Co., Framingham, Mass.

Connecticut Valley

Chairman: Edwin A. Krause, The Corporation for Inventory Conversion, Springfield, Mass.

New York Metropolitan

Secretary-Treasurer: B. Eugenia Lies, R. H. Macy & Co., Inc., New York.

Central New York

Secretary-Treasurer: Robert J. Andersen, Bowen Products Corporation, Auburn, N. Y.

New York Southern Tier Counties

Secretary: Edgar D. Sebring, Corona Typewriter Company, Inc., Groton, N. Y.

Philadelphia

Secretary-Treasurer: Victor H. Karabasz, Wharton School, University of Pennsylvania.

Western Pennsylvania

Secretary: A. G. Ashcroft, Pittsburgh Diagnostic and Consultation Clinic.

Cleveland

Secretary-Treasurer: H. F. Mueller, The Printz-Biederman Co.

Chicago

Secretary-Treasurer: Edward D. Byrnes, W. G. Lloyd Company.

Japan

Managing Director: Yoiti Ueno, Institute of Industrial Efficiency, Tokyo.

FEB-1'26 ©Cl B691959

BULLETIN OF THE
TAYLOR SOCIETY
AN INTERNATIONAL SOCIETY TO PROMOTE THE SCIENCE AND THE ART OF ADMINISTRATION AND OF MANAGEMENT

Published by the Taylor Society at
Engineering Societies Building
29 West Thirty-Ninth St.
New York

Copyrighted 1925, by the Taylor Society. Published every other month. Per Year to Members $2.50; to others $3.00. This Issue $.75.
Entered as second-class matter, Dec. 17, 1921, at the Post Office at New York N. Y., under the Act of March 3, 1879.

VOL. X DECEMBER, 1925 No. 6

Contents

Comment 237
Imagination in Science 238
International Congress at Brussels . . 239
By M. Charles de Freminville
Labor's Ideals Concerning Management 241
By William Green
Introductory Remarks by Henry S. Dennison; discussion by John A. Fitch, Fred J. Miller, Royal Meeker, Spencer Miller, Jr., Sanford E. Thompson, Morris L. Cooke, Percy S. Brown
Purpose as a Psychological Factor in Management 254
By Ordway Tead
Discussion by Elliott Dunlap Smith, N. I. Stone and A. T. Poffenberger
Some Recent Applications of Motion Study 268
By Joseph A. Piacitelli
Discussion by John H. Wellers
Reviews 277
Necrology 280

Special Meeting on

Union-Management Cooperation in the Railway Industry

A Case Presentation of Effort Towards Stabilization

Auditorium, Engineering Societies Building

29 W. Thirty-ninth Street, New York

Friday, February 5, 8:15 P.M.

Program on page 277

Comment

FROM the point of view of significance to industrial progress, the outstanding event of the year in the public service of the Taylor Society has been unquestionably its provision of a forum at the December meeting for the address of William Green, president of the American Federation of Labor. Considered by itself, that address is a message of industrial statesmanship. Considered in relation to its environment, it is a symbol of the decrease of prejudices of both management and labor sufficient to promote dispassionate joint consideration of what has always been a common problem—better management in American industry.

THE emphasis of delivery in Mr. Green's speech," says *Factory*, "convinced everyone who heard him that he is deeply in earnest in his desire that organized labor shall do its full share in contributing to sound industrial progress. He spoke, too, as if in no doubt of support behind him. But it was his closing speech, delivered impromptu, which brought full conviction that the occasion was of deepest significance. For there, while repeating the real need that labor still maintain its strong defense, he chose to emphasize again his interest in its more affirmative and constructive field of friendly cooperation."

THE *Wall Street Journal* interpreted Mr. Green as saying that "labor realizes the success of management means the success of labor, and for that reason is willing to make its contribution to assist management and bring about the right solution of problems dealt with by management." The *Iron Trade Review* reported that "Cooperation was the keynote of the annual meeting of the Taylor Society . . . nowhere more significantly sounded than in the address by William Green" and that discussors "testified to the significance of the sincere statement he had made and the willingness of management to accept the challenge to cooperation."

IN AN appreciative editorial, the *New York World* said: "Before the Taylor Society last night, President Green, of the American Federation of Labor pointed the way to more helpful relations between organized labor and management in industry. He not only preached the doctrine of good-will and understanding, but sought to show

how employer and employee could share profitably by actual cooperation in advancing their own ends. Speaking in a vein of idealism, he had in mind practical objects to be gained in the form of larger production and earnings and higher wages and fairer treatment. Capital, Mr. Green believes, is recognizing more and more that it can succeed and prosper with the cooperation of labor and the maintenance of high standards; and labor is recognizing more and more that better pay may be expected where management is alert and efficient and waste is eliminated. This is a hopeful view for the future, where in years past there has been so much strife, unreason and greed. Most notable is it that the foremost representatives of organized labor today, when pressing claims for high wages, justified the plea with the assurance that labor will more than repay what it may receive with goodwill and service."

BECAUSE Frederick W. Taylor and some of his methods were bitterly condemned by organized labor for years"—we quote the *New Republic*—"and because Mr. Taylor and some of his immediate followers apparently saw no place for the functioning of unions in industry, it was a historic occasion when William Green, President of the American Federation of Labor, addressed a joint meeting of the Taylor Society and the Management Division of the A. S. M. E. in a friendly vein, and was warmly welcomed by the members of the societies. The engineers themselves deserve great credit for the more intelligent conception of industrial relations which made such an event possible. The late Robert Valentine was the first who foresaw the possibility, but he was a voice crying in the wilderness. Little by little, however the idea of cooperative relationships spread, and the technique of establishing them began to be elaborated, by such men as Morris L. Cooke, Robert B. Wolf, and Otto S. Beyer. So Mr. Green could recognize the importance of management in improving the condition of the wage-earner, could argue for the necessity of genuine trade union cooperation in a program of improving the technique of industry as a public service, and could offer cooperation to those managements willing candidly to accept it. The conception has now been officially recognized by both parties—there remains the long and arduous task of establishing it in general practice."

Imagination in Science

THERE is no denying the assertion that there is not yet a science of management. There is scientific method in attacking the problems of management; there have been established a few basic principles, such as the separation of planning and execution under certain circumstances; but there is no substantial body of principles sufficient to eliminate uncertainty and chance in any considerable degree from managerial operations. What some are in a hurry to call a science of management is characterized by a large body of doubting observers as a collection of hypotheses, a creation of the imagination.

We believe the characterization is essentially correct; but is it, in the spirit of derogation in which it is usually made, a just characterization? Is not any science in its beginnings dominated by imagination; is not imagination essential to the development of a science? These questions must have come to the minds of those interested in a science of management who are fortunate enough to have read Pupin's fascinating autobiography, "From Immigrant to Inventor." Writing of the origins of the electromagnetic theory of light and matter, now fundamental in the physical sciences, and particularly of Faraday's part in those origins, he says (page 222):

> The gradual development of this view was due to the gradual development of new physical concepts which were born in Faraday's mind and existed there as poetical vision. . .in every creative physicist there is hidden a metaphysicist and a poet; but the physicist is less apt to persist in his occasional errors as metaphysicist and poet, because the creations of his speculative mind and of his poetical vision can be subjected to crucial experimental tests. . . Faraday was a pioneer in science, and the descriptions of his explorations read like tales from a new world of physical phenomena, full of poetical visions which his discoveries suggested to his imagination. It must be said, however, in spite of his wonderful imagination and his free use of it, no investigator ever succeeded better than Faraday in drawing a sharp line of division between the new facts and principles which he had discovered and the visions which his imagination saw in the still unexplored background of his discoveries.

Faraday, one of the first laboratory physicists, discovered in his laboratory certain "precious morsels of the eternal truth"; then his imagination came into play and directed him to put certain hypotheses which he was never able to establish; "but his magnificent effort to find his answer gave birth to new ideas which are the foundation of our modern electromagnetic view of physical forces." It was these ideas which set Maxwell on the way to mathematical proof and Hertz on the way to experimental proof of the existence of elements of the eternal truth in Faraday's speculations.

Imagination, speculation, theorizing—call it what you will—is essential to the development of any science. It is essential if industrial society is to succeed in discovering a science of management. That is why the Taylor Society, at is meetings and in its Bulletin, has been hospitable now and then to a paper speculative and sometimes "over our heads" in nature. Such speculations may inspire managers to modifications of managerial practice, and it is these modified managerial practices which constitute the objective data on which a superstructure of science is reared.

However, if imagination is to contribute to the development of a science of management, there are certain conditions to its exercise which must not be disregarded. These are explicit in the above excerpt from Pupin.

In the first place, imagination must have a basis of proved fact. It cannot be spun out of vague conjectures. The direction of Faraday's imagination was determined by substantial facts derived from his scientific experiments. Any imagination which contributes to the development of a science of management must have its basis of determined facts.

Taylor was the author of the scientific management concept because he had both imagination and critical, experimental disposition. His first job as foreman brought him immediately into conflict with workers. His capacity for observation, classification and analysis of experience gave him certain definite facts concerning the managerial conditions of the conflict. Then imagination came into play and he conceived the necessity of establishing a factual basis for human relations in industry. Then he proceeded by elaborate, critical experiments to discover that factual basis. From it he drew certain principles relating chiefly to management of mechanical processing. Then imagination entered again and he had vision of the verification of these principles with respect to distribution processes, and, before psychology had made itself known to industry, vision of a science of human conduct in industry.

In the second place, if imagination is not to lead us astray, is to play a dependable part in the development of a science of management, there must always be drawn a sharp line between, on the one hand, proved facts and established principles, and on the other hand, "visions in the unexplored background of discoveries." These visions should be presented merely as inspirations to experiment on the part of those concerned with managerial operations.

In the third place, errors of the imagination must be eliminated before they have led us astray, by subjection to "crucial and experimental tests." This is why the physical sciences have developed so much more rapidly than the social sciences—the physical sciences are concerned with data much more easily subjected to crucial experimental tests. This is a major reason why the development of the social sciences is so retarded, and why the modest beginnings of a science of management which we do have is concerned primarily with the management of equipments and mechanical processing. We have not yet a science of distribution or of human relations in industry. Conduct in industry may be observed, recorded, classified and analyzed as it appears by chance, but it cannot yet be subjected to the manipulation and control required by scientific experimentation. Therefore, while we should encourage imagination stimulated by determined facts and principles, we must be cautious in that respect, and we must be patient.

International Congress at Brussels[1]

October 14 to 18, 1925

THE International Congress "de l'Organisation Scientifique de Travail" at Brussels has been a very great success.

It was held under the high patronage of the King of Belgium and under the auspices of the Belgian Government, in the Palais des Académies. The attendance was very large, including more than one hundred and fifty French engineers, many of them of high standing, and above all MM. H. LeChatelier and H. Fayol.

At the opening meeting, speeches were delivered by M. Canon Legrand, President of the Congress; M. Wooters, Belgian Minister for Labor and Industry (Ministre du Travail et de l'Industrie); Dr. Leaf, President International Chamber of Commerce; M. F. Mauro, President of the permanent committee for International Congresses on Management (Comité de Prague); M. Ch. de Fréminville, President de la Conférence de l'Organisation Française, member Taylor Society, honorary Vice-President, American Society of Mechanical Engineers. These speeches were followed by a lecture by M. H. LeChatelier on Scientific Management and Education, and a lecture by M. H. Fayol on the point of contact between Scientific Management and "La Doctrine Administrative," of which he is the founder. The large meeting room of the Palais des Académies was absolutely crowded.

---

[1] Excerpts from a letter from M. Ch. de Freminville to H. S. Person.

The Congressists then attended section meetings which were chiefly concerned with "production cost." These sections were: "Section Industrielle," "Section des Services Publics," "Section d'Agriculture." Important papers were read before very large audiences, and then discussed.

The mornings were filled by film presentations. One of the them, very important, showed the organization of the French "Messageries Hachette" for the delivery of Paris newspapers and periodicals all over the country.

It may be said that for all those who were present at the meeting, Frederick Winslow Taylor was saluted as the Father of Scientific Management. They were particularly pleased by the patronage of the Taylor Society and of the A. S. M. E. to which Taylor delivered his early papers on management and of which he had been President . . . .

I had a good time with my old friend, Henry Fayol. M. Henry Fayol, who is now 84, has had one of the most splendid industrial careers that any engineer has ever had, taking the great mining and metallurgical Society of Commentry Fourchambault in a most critical state, years ago, and making it extremely prosperous for a long time. When he retired from active life he determined to make himself useful by preaching sound principles of administration. These are extremely simple but he is surprised that they are so little known or regarded. He calls his doctrine "La Doctrine Administrative" and the public calls it Fayolism. He has made great efforts to have it taken into consideration in government circles and applied to the work of the Council of Ministers and so on. He has succeeded in a small measure.

As far as ten years ago, he has been asking me for the analogies and differences between his ideas and those of Taylor. As a matter of fact, Fayol is trying to call the attention of general management to the most elementary duties pertaining to the general administration of business, but he does not go so far as to include consideration of the detail work of the individual workman. What he says is certainly very good and notice of it can be taken while work according to Taylor methods is undertaken at the other end.

Now, at the Congress, Fayol was asked to say a few words on the distinctive charactertistics of Fayolism and Taylorism, and he told me that he believed Taylor had denied the unity of command and that he wished that, speaking before him, I could say something to the contrary, if it was my conviction. That is what I have done, stating that Taylor had really instituted the unity of command in a shop where—authority being scattered between many omnipotent foremen without any uniform line of conduct—that unity did not exist, and the management did not fulfill its duty. This argument pleased him immensely and he stated in public that after what I had said he was happy to state that the difference was not in the principles involved but only in the means used and the field of action. He considers that I have made possible the alliance of Fayolism and Taylorism and that this is an epoch-making event!

This Congress has provided a very good opportunity for the Frenchmen interested in scientific management to know each other and to keep in closer relation in their own country in the future. They have decided, Fayol included, to enlist in the Conférence de I'Organisation Française. This is all very well, but this Society has very little means and will have very much to do to keep pace with the circumstances.

Besides myself, the members of the Taylor Society were M. Rene de Vallière of Edouard Dubied & Co. in Switzerland and M. Paul Devinat from the International Labor Office in Geneva.

WANTED—Copies of the October, 1925 Bulletin. This issue is unexpectedly exhausted. Readers who do not bind their issues may render a real service to libraries by returning copies of this issue and also of the December, 1924 issue.

Labor's Ideals Concerning Management[1]

Labor's Attitude Toward Industry and Industrial Processes Is Changing—Understanding and Cooperation Will Serve the Best Interests of All

By **WILLIAM GREEN**
President, The American Federation of Labor

Introductory Remarks of Henry S. Dennison,[2] Presiding

I AM here to introduce. May I not take the job literally and really attempt to make known the Taylor Society to William Green and William Green to the Taylor Society.

The Taylor Society believes that the managing of business is an activity capable of supporting the severest demand for professional behavior which may be put upon it; that the profession of management is taking form and must continue to develop as business units grow big and stock holdings scatter. Even when hired by capital—as is as yet most often the case—it is not capital; and though working hourly in the shop or mill with labor, it is not labor. "The Management," as the Taylor Society must conceive it, is not simply "the Old Man" or the Old Man and his staff—but that whole group of men and women who must devise such ways for keeping the whole organization going as will most efficiently compound the varied motives and meet the complex desires of consumer, dealer, investor, supplier, laborer and staff worker.

The Taylor Society knows that business management can never properly be said to be managing, much less be accorded the respect due a profession—unless it recognizes the bald fact that business, besides bringing materials into new relations with each other and so making, as we loosely say, new commodities—brings human beings into active relations to each other and so makes new men. The Society knows, therefore, that true *management cannot suffer the obsession of production or dividends, but must see both of these and plenty more of the possible fruits of a healthy organization in their true proportions.*

Management must see and know the areas of common interest and the areas of conflict among the half dozen great classes of live men and women with which it deals, and as it casts off its chains of ignorance, will know how increasingly well to integrate them. It must, moreover, learn how to enlist their powers more fully in its service—how to gain discrimination from the consumer, cooperation from dealer, constructive suggestion from supplier, and real interest from workers. And it alone can hope so to inspire and to integrate because—(and only so long as)—its own chief interest is in the joy of a great job well done.

Recognizing dispassionately these natural areas of mutual and of conflicting interest, management could not do else but acknowledge the appropriateness and the many social values of association among them. It expects to find and to deal with associations among consumers, dealers, supplying trades, financiers, and workers; to learn from them to hold clearer views of their fundamental needs; and to find them seeking their own share of social progress most intently.

Any man reading history unblinded by his prejudices must be grateful for what associations of workingmen have done during the past one hundred years. They have saved, I believe, the dignity of human labor. Yet no man caring for the future of his kind would on that account absolve unions of any social wrong they may commit; to acknowledge the past is to challenge the future.

The dispassionate student, seeing some near-sighted employers of yesterday and today, may expect *an answering irritation from workingmen tomorrow; but in all professional honesty he must nevertheless point out its ill effects and work to allay it. To remove the causes of such irritation the Taylor Society has always striven. Up until tonight, Mr. Green, we have, indeed, confined our tender ministrations to the em-*

---

[1] Paper presented at a joint meeting of the Taylor Society and the Management Division of the American Society of Mechanical Engineers, New York, December 3, 1925.

[2] President, Dennison Manufacturing Company, Framingham, Mass.

ployer. And if I myself am known beyond the broadcasting range and outside the special wave lengths of our Dennison advertising department, it is as none too charitable to the employer when his responsibilities and opportunities are in question. But on this fortunate and deeply valued occasion the Taylor Society expects to give the poor chap an earned respite.

So much for the Taylor Society. It stands, in a word, for the high destiny and unlimited responsibility of business management to inspire and coordinate the finest efforts of all parties to our economic undertakings towards the broadest advancement of mankind. Strife it accepts, but in the insistent faith that growing wisdom can raise the planes of strife.

And, ladies and gentlemen of the Taylor Society, may I make known to you William Green—miner, district president and then treasurer of the United Mine Workers of America; state senator and author of Ohio's Workmen's Compensation Law; vice-president and now president of the American Federation of Labor. His works have acclaimed him a lover of strife upon the highest planes, a believer in the great opportunities of business management, a friend of our faith with whom we can hold fruitful consultation in scientific mood. And with all his titles and honors, we tonight shall regard him chiefly as the very human leader of some millions of very human friends of ours, and as our honored and respected guest. Mr. Green—

Address by William Green

THE marvelous growth and expansion of American industry is due to the stimulating influence of private enterprises and personal initiative. The call of industry meets with a most hearty response from adventurous men, for there is something fascinating and attractive about industry which appeals to their genius and imagination. Hope of financial reward and material gain may be the incentive which inspires action, but risk and uncertainty always cast their shadows over the establishment and progress of every business experiment.

These uncertainties are offset by the qualities of personal initiative and confidence in the ability and resourcefulness of the human factors involved. Faith and confidence in humanity form the basis upon which industrial progress rests. Invention and experimentation contribute to material prosperity but intricate machinery and arduous research are of no avail if personal skill and technique are lacking.

Modern industry represents the development of an important phase of our civilization. Its contribution to the welfare and happiness of the people bears tribute to the worth and soundness of our civilizing processes. With all its imperfections the so-called capitalistic administration of industry is the best of any thus far devised. Under the present form of industrial administration a high degree of perfection has been attained, but even greater and more effectual progress can be made if the owners of industry and those who exercise financial control over it are sagacious enough to sense the trend of public thought and the attitude of the public toward industry.

There are many manifestations of a prevailing public desire to improve upon our present system and methods through the development of a higher degree of coordination and cooperation among all the units of productivity. There is no evidence of any disposition on the part of the people to invade the field of hazardous uncertainty by substituting some other system for the one we now have. They want improvement, not retrogression. They believe this can be accomplished through the elimination of abuses which have crept in and through the correct solution of the industrial problems which are faced by all those associated with industry.

This leads us to a consideration of the numerous factors associated with industry. They are varied, each contributing to the exigency and to the success of the endeavor. The three important factors are capital, labor and management. The others are of minor importance and of lesser consequence.

Not until recently was management considered of great importance. Formerly capital and labor were regarded as the only essential factors. This view prevailed during the period when the relationship between employers and employees was of a more personal character. It must be relinquished because financial changes have taken place until now, through the diversified ownership of corporations, management control has supplanted personal ownership control. This brought with it the formation of new relationships and the assumption of new responsibilities.

Labor is intensely interested in this changed relationship because it is directly affected by it. It is facing the facts which this change has brought with it in a spirit of goodwill. It hopes and believes that this changing process will result in industrial improvement and human betterment.

The primary purpose of management in industry is to control and direct the forces of production in such a way as to secure the highest returns possible upon the capital invested. The methods through which this objective may be realized have been the subject of universal study. Originally it was assumed by employers that the only way by which earnings could be maintained on a satisfactory level was through the establishment of low wage scales. Financiers held that high wages and fair dividends were incompatible; that earnings could be increased only through reductions in wages. This concept has been forced to give way under the searching analysis of modern thought and study.

No longer do we accept this wage theory. Instead it has been shown that production costs may be reduced while wages are being increased. Management is very largely responsible for this achievement, not altogether, perhaps, because there are other factors in industry which contribute in full measure to the accomplishment of this result. Each and every factor deserves full credit for the part it plays in lowering costs and increasing wages.

The power of decision and direction in the formulation and execution of policies lies with management. It is the agency which is charged with responsibility and is held accountable for success or failure. The degree of success which may be attained depends very largely upon the training and ability of management. A full measure of success can only be attained through the harmonious cooperation of all the productive forces in industry. To bring this about is one of the problems of a successful manager.

The great creative force in industry is labor. Machinery, money and other equipment are of very great importance and are essential to industrial success, but these instrumentalities are made forceful, effective and active only through the service and activity of labor. This fact directs attention, in a most direct way, to the relationship of labor and management and to the functions of each with reference to production and development. All of this involves a fundamental, sound, human relationship. The establishment of confidence and understanding between management and the workers, faith in each other and a firm belief in the integrity and honesty of those human forces is of immeasurable value and contributes very greatly to the success and welfare of industrial undertakings.

All of this requires a proper regard for the rights of labor and management. It requires even more. There must be an understanding of human nature, of human qualities and of those inspirational forces which move men who are engaged in serviceable action.

Management must deal with labor collectively and because this is true the means and methods through which it may be done most effectively are questions of supreme importance. Experience has shown that the most effective way, the most practical way, is through trade unions, organized, maintained and administered by the workers who compose them. This method insures to the workers independence, freedom of expression, a free choice in the selection of their spokesmen and a forum wherein they can consider and discuss managerial and industrial problems.

The trade union is an institution originated by the working people. It is composed of members voluntarily associated together for mutual helpfulness and self-development. The workers are the architects who designed the trade union structure and they are the builders who erected it. The members who compose it are thoroughly conscious of its potential and active powers and regard it as the agency through which the economic and intellectual powers of the workers may be developed to the highest point.

For many years both managers and owners in industry wrongfully regarded trade unions as destructive forces which should be repressed and completely annihilated. Much of the time and energy of ownership was devoted to the consideration and execution of plans and policies designed to crush and destroy trade unions. This was attended by waste of a most inexcusable kind because much money represented in the earnings of the concern was used in the attacks upon the establishment and growth of trade unions.

Such policies of trade union opposition have always been productive of losses which cannot be properly measured in the terms of dollars. These losses are represented in an absence of goodwill, of cooperation, and of a high standard of service, and in the unfavorable psychological condition which is created among the workers.

There are many evidences that these policies are giving way to a newer concept, to the belief that trade unions are firmly established in our industrial life. In fact they have grown in spite of opposition until they constitute a part of America's institutional life. It is known they are now regarded as a necessity, an essential, stabilizing force in society and industry. Men of thought and vision understand that the destruction of trade unionism would be a most serious blow to our economic and industrial life. Indeed, many believe it would be the most severe blow which industry could sustain.

Trade unions may give to industry and to management service of great value. The intelligence, the knowledge and the training which comes through trade union affiliation may be utilized to the benefit of industry and to those associated with it. It is for management to understand how this may be done and through such understanding to enlist the full support and cooperation of the officers and members of trade unions.

People find it very difficult to break the bonds of primitive thought and rise above an intolerant policy which has long been followed. So it is with some employers and some managers. Their constitutional and fundamental objection to trade unions has led them to accept substitutes therefor in the form of company unions and employees' representation plans. Having sensed the instinct for organization among the workers they endeavor to satisfy it through the organization and development of company-controlled organizations.

These company unions may resemble the trade union. The difference between them is in substance rather than in form. The inspiration of the company union comes from without and that of the trade union comes from within. The company union is restricted in its resources, its independence and its vitality. The power of veto, of domination and of control lies within the employing group. The members of company unions cannot deal with management upon an equal basis. The company unions are not trade unions.

Because of the insecure foundation upon which the substitute for trade unionism rests the company unions would collapse and cease to exist at the will of the employer. The toleration of their existence must ever be contingent upon the maintenance of independent trade unions.

The purpose of management which fosters the organization of company unions is clear and easily understood. The motive behind their action is a selfish one. It represents the desire for autocratic control and managerial domination. They seek to maintain the form of collective bargaining without its virtues or its spirit of independence. They seek control rather than cooperation. They exert the power of compulsion instead of inviting the voluntary cooperation of their employees. While there may be some managers who are sincere in their attempts to deal with company organized unions, they are unconsciously responsible for wrong to labor and disservice to industry. They are attempting to build an industrial structure upon a wrong principle.

The disposition of management, in some instances, to establish a system of production out-put so that the worker serves in a mechanical capacity is both unwise and unprofitable. It is in cases of this kind where standardization is over-done. It carries with it a form of speeding-up against which workers everywhere have protested. The net result is to destroy personal initiative, to make work monotonous instead of interesting and to cause a large and uneconomic labor turnover.

It is becoming increasingly clear that management must face facts. Management must either deal with trade unions organized by the workers, free and apart from outside influences, or deal with their workers individually. Company unions may serve some temporary purpose but they cannot function permanently or successfully. No substitute plan of workers' organizations can fill the place of bona fide trade unions.

It is conceded that industry is complex in that there are blended into operation and activity numerous elements all having to do with quantity and quality of production. Chief among these elements are finance, marketing facilities, machinery, raw materials, standards of production, skill of management and the mental and physical power of labor. Of secondary importance are large scale organization, the adoption of economic and modern methods and machinery, the elimination of waste and the elimination of duplication of effort.

While labor is not responsible and has no voice in the selection or employment of management it is vitally and directly interested in the quality and character of management.

Labor realizes that the success of management means the success of labor.

For that reason labor is willing to make its contribution to assist management and to bring about the right solution of problems dealt with by management.

Some of these problems are regularization of employment, fluctuation in prices, standardization of output, healthful and sanitary conditions of employment and the ever-pressing problem of unemployment. Safety of life, the prevention of accidents and continuity of employment make for economy in production costs and promote efficiency in service. These are questions of prime consideration. Industry sustains great losses from intermittent employment because of the lowering of workmanship morale and the consequent deterioration in the character of service rendered. It may be difficult to define the reasons for lowered morale and deterioration of service but the facts are that intermittent employment produces that result. Injury to workers through accidents is another cause of lowered morale and waste. Not only does the worker who is the victim of industrial accident suffer intense mental and physical pain but the depressing effect of such suffering is clearly evident among all groups employed in the vicinity where the accident occurs.

The great problem of unemployment is ever with us and constantly pressing for solution. It is one of the direct sources of waste. It is demoralizing in its influence and lies at the base of social unrest causing much human suffering. The problem of unemployment is a challenge to industry. It must be met—not in the spirit of toleration or resignation, but in the spirit of determination to conquer and control.

In touching upon Labor's ideals concerning management we are conscious of the fact that we have been and are now passing through a period when changes are taking place. These changes affect human relationships in a most vital way. Many of our older concepts are giving way to the newer and more progressive points of view. The relationship of management to labor is changed and is changing. The mental attitude of labor toward industry and industrial processes is undergoing revision and readjustment. Management is understanding more and more that economies in production can be brought about through the cooperation of labor and the establishment of high standards rather than through the autocratic control and exploitation of labor. Labor is understanding more and more that high wages and tolerable conditions of employment can be brought about through excellency in service, the promotion of efficiency and the elimination of waste. It is becoming more clearly understood that high wages and a high standard of efficiency in industry are correlated and the industry that is best managed, most economically controlled, where workmanship of the highest order under satisfactory conditions is maintained, is the industry that can pay the highest wages.

Labor entertains many ideals concerning management. The attendance of labor's spokesmen at meetings of this character is an evidence of this fact. We invite most sincere reflection and most careful consideration of all the ideals which labor holds concerning management. The serious-minded, thoughtful spokesmen of labor are not optimistic enough to believe that labor's ideals concerning management will be immediately realized. An ideal may be properly regarded as an unrealized peak of perfection to which we may aspire. In this respect it is visionary, serving as an incentive to effort and to achievement. Even though these ideals may be for the moment unattainable they are so practical in character and so fraught with spiritual and material possibilities as to urge us forward in an earnest endeavor to realize them.

Management holds a most strategic position. Its activities and its policies touch the very life, well-being and happiness of the workers. Chief among the ideals of labor is the development of cordial relations between the workers and management. The workers believe that through understanding and cooperation the best interests of all those associated with industry can be served.

It is the hope and desire of labor that management will respond to this lofty sentiment so that in the consideration of policies management may seek to understand not what it might compel the workers to do but instead what the workers may be able and competent and willing to do.

Through such understanding all the associated productive powers of industry can be mobilized into an economic, sustained, impelling force through which economy in production may be completely accomplished. Through the development of a cooperative spirit and the establishment and maintenance of a frank relationship the rewards of the efforts of all those associated with industry can be equitably distributed.

The wisdom of such a policy will be made manifest in a high standard of workmanship, in increased industrial earnings, in waste elimination and in the personal contact between management and the workers which is free from suspicion, antagonism and hatred.

It is an ideal of labor that management shall formulate and follow such wise policies as to bring to the workers the realization of high living standards as this condition would be of benefit to both owners and workers in industry.

Organized labor looks most earnestly toward the establishment of such an industrial relationship. It stands ready to do its full share in bringing about the consummation of these ideals. We ask that employers and management join with us in this noble and inspiring work.

Discussion

John A. Fitch.[3] I have always believed—and never more than tonight—that the most specific and constructive invention in the field of better industrial relations must be the joint production of management and labor. If the word is ever to be spoken that will have the power to bring order out of our present chaos of misunderstanding and maladjustment, it will be uttered neither in the legislature nor in the cloister, but in the workshop. Nevertheless, the social scientist, standing somewhat outside the struggle, may at times measure, weigh, or appraise developments. It is in this spirit that I venture to discuss certain phases of Mr. Green's paper.

The president of the American Federation of Labor, standing here tonight, makes three outstandiing proposals to management:

That you deal with the unions.

That you study certain phases of industry that are of concern alike to management and to labor.

That you cooperate with labor and invite its cooperation in the solution of some of these problems.

I find myself in basic agreement with these three propositions.

To accept the first proposition one need not endorse every act that has ever been done in the name of trade unionism. The speaker is not asking us to do that. But we may give adherence to the basic idea that labor should have the right to organize in its own way and to bargain collectively through representatives of its own choosing. It must be noted that this is a formula that is not met by the device of the company union. However meritorious in given cases, these are organizations of the employer's devising; and the worker is ordinarily limited in his choice of representatives to his own fellow employees. This may seem not to be a serious handicap, but no employer's group would be willing to accept such a limitation in their choice of a representative.

Organized labor may well be suspicious of the company union because of these limitations, and because many of them have confessedly been brought into being as a device to oppose trade unionism. In other cases, suspicions are aroused because of the obvious desire on the part of management to prevent the development of genuine bargaining strength on the part of their employees. For example, there is a corporation with three separate plants under unified management, located in the same industrial district, but in different towns. In each plant there is a separate company union. When the committee in one of the plants proposed a joint conference of the committees of all three plants for purposes of developing a uniform policy, the management resisted, and prevented the plan from coming to fruition. There can be no sensible explanation of this attitude that ignores the obvious desire of management to maintain its own superiority in bargaining strength.

But there are other aspects of the company union question, and this brings me to the second of the three points I set out to discuss.

I heartily agree with Mr. Green that there are many problems of joint concern which need to be studied. I will add the suggestion that many of them should be the subject of joint inquiry. In addition to those enumerated by Mr. Green, I should like to add this very subject of company unionism. Those of us who stand somewhat apart as observers rather than as promoters or members of company unions find ourselves at times perplexed by what appear to be conflicting and contradictory tendencies in this movement. We know from observation that there are company unions deserving of all of Mr. Green's criticisms and more. But what shall we say of a company union developed in a plant where no previous organization of labor has existed? In some of these plants there was lack of any recognized method for the presentation of grievances. In others there were definite efforts on the part of the foremen and superintendents to prevent even the individual expression of a grievance. Now, however limited the plan may be, the development of a company union gives these workers for the first time an organized method of stating their case. Is not this a real improvement in the status of these employees? There are other plants where craft organizations exist with a large substratum of unskilled labor, not eligible to membership in unions. Here the development of a company union would seem to provide more complete representation.

---

[3] Director, Industrial Courses, New York School of Social Work; author of "Causes of Industrial Unrest."

There are company unions which have come to my attention, of which very much more can be said. Under some of these plans there exists something very closely approaching collective bargaining. Mr. Green might say that there cannot be real collective bargaining where there is not behind the demands of the particular workers involved the massed strength of fellow workers through the industry. I am in essential agreement with that position. Nevertheless, and despite the limitations suggested, there are company unions where the representatives of the rank and file of the employees regularly and as a matter of course bring the needs of the workers to the attention of management and where either through the force of numbers or through the force of argument they are able to accomplish definite improvements in working conditions.

What conclusions are we to draw, in view of the existence, side by side with the fake company unions, of other plans of representation which have resulted in an improvement in conditions of labor, and a genuine advancement of the employees in standing and influence in their respective plants? It seems to me that the situation definitely calls for further study, and in such studies both employers and organized labor must be deeply interested. We have had some reports on the subject of company unions, but almost all of them have been inadequate because they failed to include the point of view of the workers. They have presented evidence gathered in conferences and from correspondence with employers or derived from documents furnished by employers. Last spring the first studies in this field which included a consideration of the point of view of the workers were brought out by the Russell Sage Foundation. I refer to the reports on the Rockefeller Plan in Colorado and the Dutchess Bleachery. We need many more such studies.

In this connection, I may remind you that both the employers and organized labor are somewhat disqualified for investigation in this field; first, because they are partisan; and second, because they are not experts in the field of social investigation. That, like anything else calling for specialized technique, is a craft in itself.

The third point in the address of the speaker of the evening which I wish to emphasize is his offer of cooperation. He comes to the engineers and executives in this representative group and offers the help of organized labor in the direction of better standards of production in factories and workshops. This is an epoch-making proposition; and is socially and economically sound. There are, it is true, some points in which cooperation between management and labor will not be possible. The theory of the economy of high wages is demonstrably correct, but we must recognize that wages and profits cannot advance indefinitely. A point must inevitably be reached where an increase in one must result in a decrease in the other. But reasonable men on both sides, when acquainted with the facts, will be inclined to adjust their demands in such a way as to avoid reaching the breaking point. Therefore, we must regard Mr. Green's proposal as one meriting the most thoughtful consideration. The president of the most representative and by far the largest labor organization in America has come forward with an offer of cooperation toward the achievement of the most cherished aims of the industrial technicians. Such an offer management cannot afford thoughtlessly to reject.

Fred J. Miller.[4] This paper is, I take it, an authoritative statement of a position toward which labor has been moving for some years past and it is certainly very gratifying.

Especially are we to be congratulated, I think, upon the fact that the new science of industrial management is thus recognized and credited with being an important if not *the* most important factor in showing the way to a new and very much better relation between employer and employee.

Those of us who are in the habit of facing the plain facts that are before us perceive clearly enough that organizations of almost every imaginable group of individuals having a common interest are the order of the day; and, whether we like it or whether we do not like it, workmen in many lines are now pretty thoroughly organized; and, so far as we can see, will become more thoroughly organized as time goes on.

This offer of organized labor to cooperate with the managers of industries in the promotion of industrial efficiency is exceedingly significant and encouraging, tendered as it is in recognition of the fact that, from the increased harvest thus to be reaped, labor's fair share will be the more easily secured in proportion as labor perceives that its interest lies in promoting that efficiency.

---

[4] Consulting Management Engineer, New York. Past President, A.S.M.E.

Having said this much in praise of the main feature of the paper, perhaps I shall be pardoned for calling attention to a point on which I fear its author will not secure the endorsement of our friends, the economists, who recognize three factors in production, i.e., land, labor and capital. Since labor includes every form of useful effort, mental or physical, management is classed, economically, as labor.

Any one who thinks land is an unimportant factor in industry has only to look about him, and if he does his looking in this city, for example, he may perceive other interesting things.

The newspapers of the city were filled some time ago and still publish a good deal about the rapacity of the suppliers of building materials and the still more exasperating rapacity of building trades unions, the two together making building operations so expensive as to be almost prohibitive. But at the same time the prices for building sites (i.e. bare land values) were increasing much more rapidly, and no paper commented unfavorably upon this, but favorably instead.

Still it must be acknowledged that the supplier of building materials and the building trades unions, however wicked they were or are, do render service in the production of buildings. But what service does the land speculator render? Absolutely none, but by constantly raising prices of land upon which buildings must be erected if at all, he restricts building operations and limits opportunities for the employment of both capital and labor.

For these reasons I recommend to Mr. Green that he always include land as a prime factor in production, and leave out management as a prime factor.

Royal Meeker.[5] I have been attending meetings of all sorts for many years and I had the impression that I had learned all that was to be learned from listening to utterances from the speaker's platform. After listening to Mr. Green's address this evening, however, I perceive that this generalization is, like all generalizations, much too general.

For tonight I have learned much. I regard this meeting as one of the most significant, if not the most significant, labor-management meeting I have ever attended. It is a remarkable occurrence that the Taylor Society, which is devoted to the study and promotion of better management in industry, should invite the President of the American Federation of Labor to address its members and those of the American Society of Mechanical Engineers upon the ideas and ideals of workers with respect to management. It is equally remarkable that the leader of American trade unionism should accept this invitation in the spirit of mutual helpfulness and cooperation with which it was tendered. It is still more remarkable that after naming management along with labor and capital as the most important factors in production, Mr. Green declares that the ends of labor and management are one in eliminating wastes and increasing output. As I listened to Mr. Green's sane, temperate, reasoned, practical statement of the ideals of labor regarding management, he has seemed the prophet of a new and better epoch in industry. For he speaks with authority. He is the titular and the actual head of the organized labor movement of America and his voice is the voice of labor, for only through organization can labor make its views and aspirations vocal.

I have been asked in my discussion of the address of the evening to contrast the relations between labor and management in America as against European countries. I have reluctantly consented, more or less under duress, but because I have accepted this formidable task, do not think me foolish enough to attempt a full and thorough comparison of the labor movement at home with the labor movement abroad. I shall only attempt to compare and contrast some of the features of labor organizations in the United States with some of the corresponding features of labor organizations abroad as I have come to know them.

It is quite the fashion for students of what is called the labor movement to say that the movement in America is fifty years or eighty years or a hundred years behind the movement in Europe. This is nonsense. In some respects Europe in in advance, in others America leads. Europe is a very much divided and diversified conglomeration of widely differing and more or less hostile racial and national groups. In England, which is the only European country which can fairly be compared with the United States, the trade union movement is older than in the United States and in point of organization and collective bargaining, it is far ahead of American trade unionism.

Let me give an occurrence which illustrates what I have in mind. In 1921 there was a dispute between the employers and the engineers' union in Great Britain. The British nomenclature is often confusing and all wrong. When the English speak of ***engineers'*** union they mean *machinists'* organization. Now the national organizations of employers and workers in the engineering trades had negotiated and signed a collective agreement covering wages, hours and conditions of employment in these trades applying to all Great Britain. After the union scale had been put into operation, certain local shop committees protested that in view of the high cost of living the wage rates were too low and asked their employers to modify the national trade agreement. The employers without exception refused to consider the demands of the committees composed of men working in their own shops, on the ground that these local workmen were irresponsible, could be familiar only with temporary and relatively unimportant local conditions and could not have a proper understanding of the effect upon industry in general and the engineering industries in particular of a modification of the collective agreement negotiated between the trained, experienced, and responsible representatives of the trade unions and of the employers' organizations.

---

[5] Formerly Chief Scientific Division, International Labor Office of League of Nations; recently Secretary of Labor and Industry, Commonwealth of Pennsylvania.

The local shop committees pressed their demands with the result that the employers ordered a lockout in support of the national officials of the engineers' union. I will bet that none of you present ever experienced a lockout. Employers are shy folk like the modest violet. They prefer that the workers shall appear in the spotlight of pitiless publicity as the aggressors in declaring industrial war. But here was an example of *bonafide* lockout. Why did the employers in this instance depart from their time-honored policy of permitting or forcing labor to bask in the lime light as the aggressor? The answer is simple. The employers were wise enough to see and seize the immense advantage of coming to the support of the long accepted system of collective bargaining on a national scale which has come into being in England as the result of much conflict and compromise.

In accepting the support of the employers in this rebellion against authority and the established system, the national trade union leaders were actuated by no more altruistic motives than were the employers. The union leaders were seeking to hit down rebellion. They held rightly that the preservation of the union and of peace and order in industry based upon the system of collective agreement between representatives of workers on the one hand and of employers on the other, was vastly more important than the gaining of temporary, local advance in wages. The employers were doubtless not adverse to helping in a civil war within the union while at the same time serving their own immediate ends of keeping wages from advancing. There is no doubt, however, that the employers saw quite as clearly as the national trade union leaders the great advantage of establishing and maintaining order in industry throughout the whole nation through organization and conference. Here we have an example of the leaders of employers and employees working side by side toward the same ends.

I could cite other examples to show that, in respect to collective agreements, order and discipline in industry, British trade unionism is much further developed and more influential than trade unionism in the United States. In other respects, however, American labor is far in advance of labor in Great Britain or in any other European country. Mr. Green has named management as co-equal with labor and capital in production. In so doing he recognizes the difference between management and other kinds of work. He ascribes leadership to management, but at the same time recognizes the joint responsibility of labor with management in carrying out industrial policies. Mr. Fred J. Miller has suggested that the economists will insist upon including land among the factors of production and advises Mr. Green to drop management from his list. Whatever else he may do, I urge that he retain management as distinct from and co-equal with labor and capital, whether or not he lumps all forces of investment under capital as some economists do, or names separately that specific form of capital called land. I was an economist—I am still an economist—whatever that may mean. I would say that the terms you use depend on the particular school of economics to which you belong. I hold that the recognition of management as distinct, though not independent of labor or capital ownership, is of first importance.

Mr. Green's frank statement that the success of management means the success of labor; that increased production, the elimination of wastes, and the cutting down of costs is quite as much the concern of labor as of management; that lower costs of production are perfectly compatible with higher wages and increased profits; and his pledge on behalf of labor to assist management in tackling industrial problems, all go further than any previous authoritative utterances by American trade union leaders, and, in respect to industrial management and research, place American trade unionism in advance of labor in any European country, so far as my knowledge goes. In Europe there is much groping about and confusion regarding the proper functions of management and its proper relation to labor. The confusion has become particularly confounded in Russia. So long as the American labor movement is led by the clear head and sincere heart of Mr. Green, neither employers nor the general public need fear any confusion of council or confounding of issues.

May I venture to express the hope, however, that in according place and prominence to management in industry, Mr. Green will avoid falling into the error of visualizing all managerial functions as concentrated and isolated in one individual or small group who do all the thinking, planning and ordering while the work of the worker is reduced to the simple, not to say imbecile, function of doing what he is told even when he knows it is all wrong. Indeed, we are all managers,[6] more or less, in industry and out of it. Managerial ability can't be monopolized by the managers, nor is it desirable that it should be. The good manager will see to it that his managerial arm is lengthened and strengthened to the utmost possible by calling upon the vast reserves of latent managerial skill lying dormant and unused among the workers in his establishment. Industry is a cooperative enterprise to which each should contribute according to his ability. While the managers must necessarily contribute the highest forms of managerial ability, it is neither possible nor desirable that the workers be deprived of all opportunity to exercise judgment and control over their own activities in achieving the results desired. By calling into play the brains and abilities of individual workers, their jobs can be made more interesting, production can be greatly increased, and the chief cause of discontent, unrest, and open warfare in industry will be eliminated. These are no vain words, painting on the circumambient atmosphere an impossible picture of an idle prophecy of the industrial millennium. They are but a brief and inadequate statement of what has already been achieved in several of the most progressive and advanced industrial establishments in the United States.

Mr. Green, in inviting employers and managers to cooperate with the workers in attacking the problems of industry and pledging the active support of labor in seeking solutions for these problems, has mentioned several of the most important fields for study and experimentation. Among these are the problems connected with employment and unemployment and the problem of standardization of output. In this plea for a pledge of cooperation in attacking industrial problems I take it that Mr. Green means full cooperation in needed research as well as cooperation in setting up committees of conciliation, mediation or arbitration. In closing, I want to repeat that this meeting seems to me one of the greatest importance and promise. Strength to your elbow, President Green, and to the elbows of all associated with you in your efforts to bring about order for chaos, stability for instability, peace for war in the world of industry!

Spencer Miller, Jr.[7] Mr. Green's address this evening is an historic statement. As President of the American Federation of Labor, and as the official spokesman of labor in this country, he has frankly recognized the role of management as a functional part of modern industry, and, as frankly, has invited the recognition of the trade union movement as a constructive and functional part of industry as well. He goes further. He tenders officially an offer on the part of labor to cooperate with management in the development of such research or joint projects as will make industry of greater service to the public. Here and there in this country we have within the past few years had a few outstanding developments of union-management cooperation, as for example on the Baltimore and Ohio Railroad which have demonstrated the fruitful character of the very type of cooperation that President Green invites. But, by and large, there has never been, in my memory, such a genuine tender of cooperation by labor to management as we have heard this evening. It is an endorsement by labor of the past accomplishment of such cooperation; it is a promise for better industrial relations in the future.

There seems to me, furthermore, to be a certain parallelism between the development of constitutionalism in industry and in the political state. The frank recognition of the Third Estate by the other two estates was, in the words of a great historian, an event of transcending importance. For this very recognition of the status of each estate in the administration of political government brought about important divisions of functions and placed administrative responsibilities upon each. And when these

---

[6] See article "Who Can Hire Management" by Henry S. Dennison. *Bulletin of the Taylor Society,* Vol. IX., No. 3, June, 1924.—Editor.

[7] Secretary, Workers' Education Bureau of America.

Estates arrived at a basis of active cooperation you have the beginnings of a more responsive and responsible government. The same thing, I believe, is taking place in industry, and President Green's address and offer is a challenge to management to take the next forward step not alone, but together with labor.

If I may carry this historical analogy one step further, the recognition of the Fourth Estate—the Press—in government, often ascribed first to Edmund Burke, that staunch champion of American liberties in the British House of Commons in the closing years of the eighteenth century, finds a parallel in the recognition of the force and power of public opinion in the character of industrial relations and industrial government. The importance of public opinion in every industrial situation, I am sure Mr. Green himself would be among the first to admit.

There are but three brief observations that I should like to make about the social consequences of cooperation in industrial relations, to supplement the points already raised in the discussion. And the first deals with the whole question of leadership, whether in the state or in industry. In the modern world, leadership rests not upon mastery, but upon influence. Cooperation seems to me to be a technique that is best devised to sustain such a leadership of influence for reasons that will be obvious to you all.

In the second place, cooperation in industry implies equality not necessarily of ability to manage industry successfully, but of interest in its successful management. This stands as one of the most important results of cooperative relationships. It is the report of those who have succeeded, in spirit as well as in fact, in developing industrial relations on this basis. It accounts, from my observation, for the high standard of morale on the Baltimore and Ohio Railroad.

There is, finally, one part of this address that I believe we will do well to ponder upon, because it deals with the underlying ethics of industry. I refer to the idea that cooperation is not only a method of procedure, but is a goal if we believe that it is the function of industry to serve the community. It is not then that, in the words of Shakespeare, "The play's the thing," but rather that *The Inter-play's the thing*. In a word, when we can begin to integrate the various groups in industry together around such a common cooperative purpose, it will be well for the groups and for industry; it will be well for the community also.

Sanford Thompson.[8] Trade unionism can never be fully successful unless, and until, the daily problems that confront the workers and the management are settled on a basis of fact, not opinion.

Mr. Green, in his paper, indicates his appreciation of the fundamental importance of the scientific treatment which alone can solve these problems.

The broad problems of labor relations, health, safety and research are matters of prime importance for mutual consideration by the management and the workers. The apparently smaller features involving the work during the entire day and every day of the week which affect the returns for service rendered and the conditions under which the work is performed, are of even greater moment. Along these lines, therefore, is one of the most needful fields for cooperation. I wonder if those of you who are not associated with industry, or perhaps even some of you who are plant executives, have a conception of the important place that the little Yankee word "guess" occupies in the conduct of our business today. It is utilized in fixing piece-rates. It frequently adjusts day wages. It even may govern the determining of company policies.

Considering particularly the features affecting earnings, we find in the iron foundries, for example, a widely accepted method of setting approximate piece rates so that they bear little relation to the amount of work done upon different weights and shapes or to the time required by the molder.

In clothing manufacturing, the work of determining correct standards of production is scarcely begun and in only a few scattered localities.

In the coal mines, although a schedule of rates is worked out, much work is carried through without definite planning. The amount of payment for certain operations, such as handling of rock, is often based entirely on the snap judgment of the foreman.

Shoemaking we think of as one of the oldest of the trades and yet nearly all piece rates are figured on the basis of guess and bargaining between the workers and the management. As a result there is rank inequality in the amount of pay for different operations which may be quite similar in character.

All of this is no indictment of trade unionism. The non-union shop is no better than the union shop as to accuracy of rate fixing methods. We can see, however, the wonderful opportunity in which the workers can unite in the satisfactory adjustment of these so important matters. Already certain union groups are taking the initiative along these lines.

---

[8] President, The Thompson & Lichtner Co., Management, Research and Construction Engineers, Boston, Mass.

Until these intimate vital factors are smoothed out the relations between capital and labor are bound to remain on a fighting plane.

What can be done about it? The answer can best be made by indicating some of the results that are being accomplished at the present time. In certain foundries accurate rate setting is in operation. In a few clothing factories standards of production are being utilized. In mining there have been pointed out certain rather remarkable developments in methods.

In shoes, a few manufacturers are beginning to figure rates in a scientific manner to adjust the inequalities which are now so universal. In one case, for example, it was found necessary, in order properly to balance the individual rates, even on operations handled by the same worker, to adjust them from 10 to 40 per cent both ways. Finally it has been found possible actually to set accurate rates on new styles of shoes with no trial procedure of any kind. Such developments as this take away one of the chief bones of contention between employers and the workers.

At the present time, sums running into millions are used each year by both employers and workers in fighting for higher, or lower, or fairer rates. This money and effort, if spent on constructive work, would prove of far reaching benefit to industry as a whole and to the working man in particular.

Morris L. Cooke.[9] It is fortunate that management has come to assume that the formulation of labor's policies is labor's task! It is because we are convinced that Mr. Green—leader of millions—voices sentiments stirring at the very heart of the labor movement that this is a great moment for those who not only vision industry encompassed by law and order but see in work properly conducted the possibility of a great new adventure for the race.

Both in our political life and in industry we must erect safeguards against the leveling process growing out of mass action. On the other hand we do not hold the idea that democracy—whether political or industrial—necessarily implies mediocrity. I have often wondered whether it might not be possible for labor unions to be a bit more tolerant of experimentation—of deviations from the standardized practices found desirable for the movement as a whole. For this reason I regret the 100 per cent opposition which Mr. Green has voiced toward company unions. I hold no brief for them. I understand their very distinct limitations and detect back of many such plans shortsighted and even highly improper motives. But it is also true that they frequently are sincere efforts toward a more enlightened industry and usually are training stations in cooperation. Perhaps some day labor unions may feel strong enough to permit experimental union plants where promising principles and practices may be tried out under friendly and dependable auspices. In every other avenue of human endeavor a certain amount of experimentation must precede wise and progressive action. Perhaps management may aid in providing the setting where labor unions may enjoy more freedom in this respect than has been possible in the past. If and when such plants come, I suggest they be called "service test" rather than experimental plants.

Several problems have come up in my own practice in the last year or two which are incapable of solution in the absence of such cooperation as Mr. Green has described. One of them will serve for an illustration. It is commonly recognized among electrical engineers that the power load curve of a typical industrial plant is irrational and does not correspond with what might be presumed to be the production curve. The power demand reaches a peak at about ten in the morning and then falls off rapidly to the noon hour. In the afternoon another peak is reached at about three. The demand then falls off rapidly until five. The afternoon peak is almost never as high as the morning peak. Engineers attribute these vagaries in the load curve to "fatigue," "sabotage" and "the piece work system." But no one really knows who is responsible for what appear to be variations from a logical production curve or in what degree labor and management are jointly responsible. A real investigation is impossible except on the basis of mutual interest in getting at the real facts and a mutual regard as to investigational methods.

Some years back in an address by Robert G. Valentine given at a meeting of this Society, the profession of management engineering took the first step on the road that has brought us to this far-reaching offer of labor to cooperate in cutting out waste, in amplifying production and in otherwise rationalizing industry for the benefit of mankind. Fifteen years ago Valentine was a voice crying in the wilderness. We did not sense his message. The significance of consent as a factor in industry was not widely understood. But fortunately we have long since discovered our mistake and admitted it. I believe it adds to the impressiveness of this occasion to recall the earlier one.

---

[9] Consulting Engineer, Philadelphia, Pa.

It should hardly be necessary to remind this audience that in industry as in international relations there is a technique of cooperation as well as a technique of strife. God knows that in both fields the latter has been all too fully stressed and developed. We are just beginning to recognize the first few principles of cooperative effort. A technique for industrial cooperation is all but unknown. Hence it behooves every one at interest in these matters—especially management—to be very, very patient with these "small beginnings." Those of us who have caught the vision—especially those of us who have had this opportunity to sense the obvious sincerity back of Mr. Green's remarks—are obligated to hold this front line trench until reinforcements come up. To the high task of "filling in—not bridging—the chasm between capital and labor," to use Taylor's own words, the Taylor Society should re-dedicate itself.

Percy S. Brown.[10] Mr. Green has very convincingly and frankly stated labor's position with regard to cooperation between labor and management which will result advantageously to all the elements in industry. I wish, however, to emphasize the fact that management cannot act immediately in attacking the problem, and that any attack must be prolonged and well sustained. To expect immediate results would be to encounter discouragement at the outset. We must plan very carefully and expect momentum to be gained slowly, and must bear in mind that though the Taylor Society represents advanced thought in management, it is not in a position to guarantee immediate results. Management, however, will be found to be in absolute sympathy with labor's program with respect to cooperation, and will do its utmost to attack the problem promptly and effectively.

Closure

William Green. As Mr. Percy Brown has said, the results which will come from the meeting this evening and the events leading up to it will be slow. The leaders of labor recognize that well. On the sides both of management and of labor, there are prejudices of long growth to be overcome, and it will take time to accomplish this.

As an instance of the old feeling, I might tell a story of what actually happened during a negotiation regarding wages and conditions in one of the Pennsylvania coal mines. A miner, a big fellow, was appointed on the bargaining committee by his local, and when the discussion began as to who the remaining members of the committee should be, he spoke up declaring that there would be no need of any additional members; that he himself could lick the mine manager without assistance.

The sense which the workers have had that they have been exploited in various cases by unscrupulous owners or managers will take time and the action of public spirited managers and owners to overcome. I might illustrate this by a case that occurred, a somewhat extreme one, in the Hocking Valley mine in Ohio. Coal miners are paid by the ton, each car being weighed on track scales and credited to the miner who excavated it. In this case the miners complained that they were not getting full weight. It was discovered that the track scale used had been tampered with, a rubber stop being inserted in the indicating mechanism in such a way as to set a limit to the weight recorded no matter how much coal in excess of that weight might be on the car. By this arrangement, of course, the miners were continually robbed of their just wage.

Conditions and states of mind indicated by both these instances, which of course might be multiplied many times, stand in the way of the cooperation which labor leaders and progressive managers desire to bring about. But it is our belief that such conditions and states of mind will gradually disappear as the benefits of cooperation to both parties appear.

Progress towards these things requires the education of management and the education of employees. It means we must learn the spirit and methods of working together which are not things that can be learned by precept or formula, but must be evolved out of the process itself. Let not one of us be deceived as to the difficulties of the undertaking; but, on the other hand, the benefits and advantages to be gained are worth all the difficulties and the perplexities that are required for the achievement. Labor stands ready and willing to do its part.

---

[10] Works Manager, the Corona Typewriter Company, Inc., Groton, N. Y.

Purpose as a Psychological Factor in Management[1]

A Discussion of the Methods by Which an Integration of Group Purposes Can Be Effected in Industry

By **ORDWAY TEAD**[2]
Department of Industry, New York School of Social Work

THIS discussion, however abstract it may seem at times, has a practical intention. A well-known industrial manager recently remarked, "Industry has been on a war basis. We must try to place it on a peace basis." It is the intention of this paper to consider what line can be followed by managers to get industry upon a basis where good-will is manifested, where cooperation between groups is willing and not enforced, where conflict is a creative and not a destructive force.

I am concerned in the first instance with the conduct of managers both because of their influence and because the activities many of them are now embarked upon indicate that they are concerned to find a better way of confronting industrial conflicts. I do not at all mean to imply that other groups have not equal responsibilities in the same direction.

Much stress has all along been laid upon technique, upon the methods and procedures of executives and of the production they direct. I am here maintaining that the purposes and motives which actuate managers in their work are as important to its true success as their methods. Only when purpose and procedure look in the same direction is the outcome fruitful. In fact, the problem of relations among the several groups in industry—and especially that between managers and the rank and file—will make little progress toward amity unless and until managers consciously strive to change conditions and methods so that the individuals in these several groups can share in and work for the same purposes. Only as the whole complex of policies and practices in industry enables these groups naturally to espouse the same objectives can the possibility of destructive conflict be avoided.

I have thus two related points to emphasize. One is that the character of the purposes of managers is vital to the effectiveness of their behavior. The other is that the purposes of managers—and of all the other groups in industry—change only as all the surrounding conditions allow and require them to change. And this process by which purposes are modified is one of the pivotal points to grasp if managerial behavior is to be affected.

In order to establish the full implications of my thesis, it is necessary to answer a number of questions:

I. What is a purpose; and what effect have purposes on conduct?

II. Where do the individual's purposes come from; and how do they come to be what they are?

III. How do group purposes differ from individual purposes?

IV. What groups participate in the conduct of industry today; and what group purposes are seen manifested in their behavior?

V. Are these group purposes in conflict; and if so,

VI. What is the possibility of establishing and giving effect to purposes which can be shared in and worked for by the different groups participating in industry?

And if there is such a possibility,—

VII. Do any principle and any method suggest themselves from this analysis which will help managers to bring to pass a greater agreement among groups or integration of group purposes in industry than exists today?

Each of these questions will be discussed in turn.

I. Purposes Defined

What is a purpose; and what effect have purposes on conduct? Purposes are of two kinds. There are those which are fundamental and permanent. There are those which are specific and more immediate. The former arise out of basic unlearned needs and desires of the individual; and the fundamental purposes of all persons are therefore qualitatively much the same. And the differences of specific purposes which are found in individuals and groups are those which the surrounding conditions have in part created and fostered. A purpose in either sense is an aim or objective which consciously or unconsciously controls behavior in its direction. A conditioning factor in all purposes is obviously the environment in which action is taking place. Purposes are never without a bearing upon and relation to the conditions at the time—they are, in fact, only intelligible in connection with them. And one element in these conditions which must never be lost sight of is the purposes of those individuals or groups by whom one is surrounded.

---

[1] Paper presented at a meeting of the Taylor Society, New York, December 4, 1925.

[2] Author of "Instincts in Industry"; joint author with H. C. Metcalf of "Personnel Administration."

The specific things human beings are really striving for are often called their desires. They might also be called their purposes. Desires and purposes may or may not be known for what they are by the individual himself. Often, indeed, the account of the individual as to what he wants is rationalized rather than truly reasoned; and then one only discovers the effective purpose by examination of the kind of conduct which goes forward.

Human purposes are influential—they do direct action which has any element of choice in it. Yet they do not direct it in any independent or arbitrary way. They function in close relation to all the surrounding circumstances of the individual. And the more specific the purpose, the more likely is it to be molded and redirected by these circumstances.

The purposes which motivate human beings thus bear a close relation to the demands which individuals make upon life and to the restrictions which the whole environment puts upon those individuals. Where purposes come from and why they are what they are are thus pertinent questions for further inquiry in any discussion aiming to show the place and importance of purposes in an understanding of the behavior of managers today.

II. The Origin of Purposes

Where do purposes come from; and how do they come to be what they are? Briefly stated, purposes come from (1) the impulsion to satisfy fundamental, unlearned, human tendencies; (2) the impulsion to carry out habits which have been built up out of experience; (3) the pressure and dictation of the social environment; and (4) an imagined conception of some near or remote good which the individual has formulated or has learned and is enthusiastic about (often referred to as an ideal.)

Human beings are typically impelled to conduct along one or another of the following lines: (1) they demand a measure of economic security, which means assured provision of feed, shelter and clothing, or access to the means thereto; (2) they demand the opportunity for approval at the hands of those with whom they come constantly in contact; (3) they demand opportunity for the building up of some domestic organization which is controlled more or less by affection and which provides a medium for the upbringing of children; (4) they demand that the activities upon which they are creatively engaged shall be reasonably well harmonized with their capacities, aptitudes and interests; and (5) they demand that the disposition of their leisure time be a matter of self-determination and that its content be satisfying to them.

Habits thus come to be purposes in the sense that by often-repeated experience people find that what they want very much in all sorts of directions is "more of the same." This is probably a more frequently correct explanation of human purposes and desires than any other.

Purposes come also from social pressure, in the sense that what people want to do is built up out of repeated discoveries of "what is expected of them."

And purposes come sometimes from the glamour of a new idea caught from some strong personality, from reading, from imagining some new combination of human elements in experience, that is, some "ideal."

To ask how the individual's purposes come to be what they are is in effect to inquire what his total experience has been; that is, what has been his ability to realize upon the impulsions which make him the center of continuing activity. His purposes come to be what they are by virtue of the total complex of factors which contribute to forming his personality.

Clearly, then, from this entire discussion the idea is implicit that specific purposes do change and even the manner in which fundamental purposes seek satisfaction may also change. Bearing as they do an explicable relation to the total situation, purposes may be fluid and dynamic. Managers cannot, for example, in an impatient desire to "do something about labor relations," expect to introduce such new features as employee representation and employee stock purchase and expect them to work wonderfully while the executives still cling to the managerial purposes of ten years ago. Also, they cannot expect, having introduced them, that these procedures will leave unaltered the desires of the workers who participate in them. Moreover, experience shows that if they stay in use long enough, these procedures are bound to affect the purposes of the managers who introduce them, by leading them into experiences which are helpfully educational.

III. Group Purposes vs. Individual Purposes

How do group purposes differ from individual purposes? Group purposes are not different in essence from individual purposes; although there is some difference in certain qualities of the purposes. A group purpose is the desire of the members of the group to secure for themselves by acting together those conditions which will enable them to satisfy certain individual purposes which they consciously have in common. A trade association or a labor union has group purposes in the sense that each is forwarding policies and measures to assure for its members certain things which they desire.

The *quality* of the group's purpose is likely to be different in a number of particulars. A group tends to keep its specific purposes *simpler* and more "single track" than an individual. It tends to have them become more *intense*. And group purposes usually *change more slowly* than individual purposes, because of the necessity of affecting a considerable number of individuals.

Bearing in mind these qualifications, the specific purposes of a group of employers in one industry organized on trade lines or of a group of craftsmen organized into a union or of a group of foremen in one plant organized into a foremen's council tend to be understandable in the light of their surrounding limiting conditions and of their activity in carrying out their function. Each group necessarily strives for immediate ends which grow out of its own problems. The efforts of employers or of workers or of foremen on behalf of their group purposes are inevitably couched in terms of their respective interests and functional responsibilities.

But the fundamental individual purposes of the members of these several groups—desire for approval, security, creative satisfaction, domestic well-being, satisfying leisure, etc.—remain much the same, in kind, if not in degree.

In other words, the strife of different groups for the carrying out of their several purposes arises out of certain economic and psychological relationships. The purposes of individuals in the different groups tend to remain essentially constant. Which means that if the different functional groups in industry or politics or elsewhere can possibly construct new specific group purposes of such a character as simultaneously to harmonize with the purposes of other groups, the possibility of a cooperative sentiment growing up among the members of different groups is greatly enhanced—due, of course, to the inevitability of their combining to realize the new purpose.

This truth is stressed because, although there are certain important conflicts of group purposes in economic life today, there is also, because of the possibility of integrated purposes, the likelihood of creating among all the groups participating in economic life an attitude which is, if not beyond conflict, at least partially above it.

IV. Group Purposes in Industry Today

What groups participate in the conduct of industry today; and what group purposes are seen manifested in their behavior? In popular thinking the only group alignment in industrial life is "capital and labor." This is a wholly unrealistic and over-simplified conception. Analysis reveals that there are typically, in specific situations, the following functional groups: (1) the investing group; (2) the managerial group; (3) the manual working group (sometimes sharply divided into skilled and unskilled); (4) the customer group; and (5) the general public group.

The same individuals may participate at different times in sharing the purposes and loyalties of different groups. But the fact of the integrity of different group purposes remains subject to alteration only as the environment or function of the group is modified or for other reasons new purposes are evolved.

The purposes which are typically manifested in the behavior of these groups may be safely generalized upon, if it is always remembered that there are plenty of individual exceptions to the typical case. In fact, it is these exceptions which constitute the hope of the present situation by offering suggestions as to how, by some modifications in purpose, the sentiments of groups have in certain cases been changed.

(1) Typically, the purpose of the investor is to secure as large a return on his investment as is consistent with the security of his principal. The fact seems to be, however, that the size of the typical dividend return in industry today is diminishing as the fundamental risk in the basic industries diminishes. Indeed, in a recent study,[3] Mr. Brookings shows that the return to the investor is becoming a fairly standardized matter, except in new and experimental industries.

(2) It is usually the purpose of managers to assure that a high yield is earned on the investment, while at the same time the plant is operated in what seems to be technically an effective manner, if this aim can be fulfilled without encountering too great resistance from foremen and workers. Where managers are also owners of stock, their purposes are to that extent made identical with those of the investors. Yet there is room for considerable modification here if they feel that the return can come to them more directly in a higher salary or if their reputation as efficient managers and successful leaders of men is also something of which they are proud. The increasing emphasis upon "professional" status in the managerial world offers, for example, a modification of the typical scheme of managerial purposes.

(3) The purposes of the manual working group are in general to secure as large a share from the enterprise as is possible, consistent with a reasonable expenditure of energy and a reasonable satisfaction to be secured out of the carrying on of the work process itself. Modification of these purposes is a fact of considerable importance in certain experiments going on today of which note will later be taken.

(4) Customers desire to secure an adequate supply of the goods they are demanding, of a sufficiently good quality and at prices which are as low as is consistent with that quality and with ready accessibility to the desired goods.

(5) The general public in its relation to industry functions largely through the administrative and regulative authorities of government bureaus. It may function occasionally through "public opinion" in the press and elsewhere. But in both instances the general public is interested in being let alone and being undisturbed in the pursuit of that to which it is accustomed.

V. The Conflict of Group Purposes

Are these group purposes in conflict? Admittedly this statement of the purposes of these several groups is over-simplified. Yet its fundamental truth points to the fact that as these groups confront each other in the economic arena their purposes are in certain important respects in conflict. This conflict is both economic and psychological in origin. Economically, it grows out of the contest among functional groups over the division of a limited volume of national income. Specifically, it arises about problems of the distribution of the return from the conduct of a given business. This means, for example, problems of price, of wages and hours, of the rate of return on investments, of the extent to which surpluses shall be reinvested in the business, etc. No absolute standards are derivable which might entirely remove decisions on these points from the realm of controversy.

Psychologically, the conflict grows out of the fact that the characteristic environment and work of each group almost inevitably breeds attitudes in relation to other groups which are charged with distrust and suspicion, if not with downright antagonism.

There is a resentment between those who work with their hands and those who work with their heads; between those who manage and those who are managed; between those who secure income from investment and those who secure it from direct labor, either executive or manual.

Two practical conditions are to be seen in industry from this point of view of conflict. There are, in the first place, those companies where the aspect of conflict has been allowed to become over-emphasized. And there are, in the second place, those companies where the view is held that there is no real conflict of purposes among the several parties. Both views constitute an inadequate explanation of the real situation. The fact is that there are some interests which investors, managers and workers have very much in common; and these need to be analyzed, stated and emphasized. Constant emphasis and dwelling upon the aspect of day-by-day conflict among the groups is neither wise nor productive. The difficulty is, however, one of emphasis, which can be corrected, especially if the basis of a sound, cooperative, working relationship is understood.

---

[3] Robert S. Brookings, "Industrial Ownership: Its Economic and Social Significance." Reviewed on page 279.

The view that there is no conflict seems to grow out of reluctance to admit the existence of conflict. The idea is "viewed with alarm" because it is feared that conflict may imply violence in conflict, or because of a sincere conviction that conflict is immoral. The notion that this conflict of purposes can become what Miss Follett has called a "creative conflict" and be the means—in fact, the only means—to the evolving of purposes which can be shared is a view which is thus far unappreciated by those to whom the conflict notion is repugnant.[4]

Alternatives to Conflict

An interesting question to raise at this stage of the discussion is: What are the alternatives to admitting the necessary permanence of the element of conflict in industrial life? Miss Follett wisely points out that there are four:

1. The element of conflict can be ignored.
2. It can be denied.
3. It can be assumed that a temporary balancing of interest is all that can be obtained.
4. There can be a successful effort made to create a new working basis which is not a balancing but a sharing and harmonizing of purposes.

Of these four alternatives, only the last two require further discussion. One objection to urging the balance-of-interests view is that it presupposes the existence of a reasonable degree of equality of power on the part of the groups evolved. This equality, however, is not usually achieved in industrial life today. In consequence, attempts to work on the balance-of-interest basis involve some few cases where equilibrium is attained for temporary periods, but many more cases where one or another group is so much superior in power to the others that the basis used for urging settlements is fundamentally a power basis. And from a psychological point of view, the power basis in dealing with adults in another group is not permanently an effective basis.

Consideration of the fourth alternative will take place in connection with the answer to question VI.

Managerial Motives Reviewed:

Before attempting to answer this next major question, it is worth while to particularize a little more about the motives seen in control of the operation of present-day corporations. Even though it is realized that there are different groups involved in carrying on corporate activity, it still is usually assumed that the corporation's aim, especially as exemplified by stockholders and managers, is single, namely, profit-making. And if this is the case, it is easy to see how, economically speaking, customers and manual workers would be in conflict with this purpose.

Such a description of motives is unduly simplified, as a more careful examination of the facts bears out. This problem can best be approached by first raising the question as to why there is economic activity at all. The popular answer is that economic activity takes place because of the desire for profit. The realistic answer is that economic activity takes place also and basically because of the pressure of necessity. Economic activity is today normally a characteristic of people in temperate climates, because they must anticipate their needs for food, shelter and clothing. They are under the necessity of extracting a living from a reluctant and not too bountiful nature. And a true account of the case is that most people work because they have to in order to survive. It is probably further true that human beings in temperate climates derive considerable satisfaction from many of the activities which are typically associated with the conduct of the economic life. The demand for activity as such, both physical and mental, is a dominant characteristic of human beings and much of this satisfaction in sheer activity unquestionably carries over into the economic sphere. People are not only active in industry because they have to be, but because they get considerable satisfaction out of the activity as such.

Examination of particular situations reveals a further interesting variety of motives. It is understood, of course, that profits are, as matters stand, a pragmatic test of economic solvency and commercial utility of an enterprise. Practically speaking, profits are today the accredited device for measuring economic utility; and in the absence of any other universally accepted measure, they have to be reckoned with. But that they supply managers with their sole motive for activity in business would be true in almost no case. And one can find plenty of corporations where profits are thought of as one necessary condition of operation, but not the only test of managerial success. A good example of the fact that the profit motive is not inherent in the order of things, but is established by social convention, is seen when one views the purposes at work in the management of public utility corporations, where dividend rates are in effect limited by government. Profit motivation is, of course, absent also in various economic activities which are governmentally owned and operated.

---

[4] See M. P. Follett, "Creative Experience."

There are also other corporations not in the two groups mentioned above in which other motives complicate the picture. There are, for example, plenty of managers who are obsessed and controlled by the desire for mere size in business, anxious to build up a volume of business which shall be greater than any other. There are others in which the pugnacious disposition to oust competitors and win out in a fight for markets is a controlling consideration. There are still others where a desire for a serviceable output and the sense of creative accomplishment find outlet through business development. There are plenty of managers who are proud of the traditions of their organization, proud of their trademark, anxious to be known as dispensers of a quality product at a reasonable price.

There is an increasing number of cases, too, where managers take pride, even at the expense of immediate profits, in the goodwill of the employees of the organization, and take pride in fostering in them by practical means a genuine feeling of their essential partnership in the conduct of the enterprise.

Unquestionably, some or all of these as well as numerous other purposes mingle in a bewildering complex in the motivation of managers.

One difficulty has been that the business man has been told so often by the classical economists that he is "in business to make money," that he has himself tended to take this statement as a complete account of the truth about his purposes. Yet the situation that is disclosed on the managerial side is one where purposes are really plural rather than single, and are likely to be in flux rather than fixed and static. Indeed, before going on to answer the next question, it is of importance to consider why it is in general that purposes change and how they change.

Why and How Purposes Change

Managerial purposes are in practice seen to change for many reasons, of which the following are illustrative:

First: The manager runs into real difficulty and is forced to cast around for some new method of securing his ends. He is likely to find in the course of following a new method that he is also gradually revealing to himself a new purpose. All sorts of illustrations of this simple truth are at hand. A manager believes unit costs in a department are excessive, due to the lack of an incentive method of payment. He decides to change from week work to piece work. The workers in the department make their objections to this change effective by walking out as a body on strike. Perhaps the foreman suggests that if he had taken the matter up with the department in advance and explained that no real reduction in wages was contemplated but rather the opposite, no strike would have taken place. This leads the manager to consider whether he should have some definite method of conference with employees. And thus a purpose of lowering unit costs has become a purpose of improving conference methods with employees.

Second: Change in purposes may be due to the pressure of stockholders.

Third: The pressure of public opinion may bring managers to change their purposes as is true in some cases of employers who have a definite policy to pay a wage equal to the legal minimum wage in other industries, although their own industry may not come under such a legal regulation.

Fourth: Purposes are changed by what someone has well called the "prestige motive." If a manager finds he is playing golf with associates who take pride in a liberal labor policy, for example, his desire for prestige with his associates may lead him to bethink himself of measures in a similar direction.

Fifth: Purposes may change because of the prompting of new desires born of boredom with old desires or started by the acceptance of new ideas acquired from other people or from reading. The active experience of initiating new policies and methods growing out of the willingness to try out new ideas brings with it the actual change of purpose.

In other words, a purpose is not an actuality until it has really affected one's behavior. The actual grip of motor experience upon the individual is the only method by which purposes are changed, for only thus are they wrought into the fabric of the individual rather than being held merely as an opinion.

Indeed, in many cases, the new experience is that which creates the new purpose. As one writer puts it, "On a basis of what has been already experienced, things are desired; on the basis of what has been desired and experienced, new things become desired. This extension and growth of desire take place through the influence of similarity and analogy."[5]

The experience of a considerable number of corporations with safety committees of their employees well illustrates this point. A few years ago many plants undertook to cut down their accident load by appointing safety committees of their employees as points of contact through whom education and preventive work was to be done on the safety question. The purpose of the managers was to reduce accidents. But they soon found that they were discussing not only accidents and contributory causes with the employee groups, but other common problems. The committee idea was thus naturally extended to the consideration of general grievances and shop problems. From this it was a natural step to the creation of a shop committee which was elected departmentally rather than appointed. Meanwhile the purposes of the managers had come a long way from the initial aim of accident prevention.

Another example is that of a well-known plant in which the managers believed that the inclusion of a certain few key employees in an employee stock-ownership arrangement would be beneficial to company morale. This company had a shop committee which eventually requested the extension of the plan to make all employees eligible. The request was granted. In the course of several years of experience the purposes of the managers as to the holding of stock employees was considerably changed and broadened.

In short, specific purposes do change and evolve, and the manner in which fundamental purposes manifest themselves can be substantially modified. Because people have minds and reflect on experience, and even more because external conditions modify, redirect and restrict experience, their purposes *must* change. There is an innate craving in human beings for economy in the choice of means to fulfill desires as well as in the choice of desires which can be fulfilled. Purposes, because they help to control activity, help to alter situations and surroundings; and these, in turn, help to re-shape purposes. Thus it is that there exists for human groups which are in conflict the possibility of "integration"—of evolving new purposes to which different groups can subscribe, and in striving for which the genuine desires of all will be realized.

This brings the discussion to a point where it is possible to attempt to answer the next question:

VI. The Integration of Purposes

What is the possibility of establishing and giving effect to purposes which can be shared in and worked for by the different groups participating in industry? The first answer to this question is that there are already some purposes which can and are being shared in and might be shared in more fully by the groups in industry if they had a full appreciation of the oneness of their interest on these particular matters. A good example here is that of accident prevention work within industry, which, by the creation and introduction of the device of Workmen's Compensation has made it to the definite interest of all groups to work for the lessening of the accident rate. By the simple device of putting upon the employer the burden of paying the premium on accident insurance, efforts at accident reduction have been made a real purpose of managers and investors no less than of the manual workers, because of the possibility of reducing the premium with the reduced accident rate.

Another example is the common interest of investors, managers and manual workers in a proper program of training within the factory or store. As soon as the management understands that it is common experience for plants which have such a program to cut down the length of the training time by half, to cut down the wear and tear on equipment, the amount of spoiled work, etc., they realize that it is a valid purpose for them to introduce a training procedure. Such a training procedure is highly desirable also from the employee's point of view, since it enables him more quickly to attain a maximum earning power, it shortens the period of awkward inefficiency, it enables him to carry on his work in the least fatiguing and most acceptable way.

---

[5] B. M. Laing, "A Study in Moral Problems," page 218.

These are examples of matters regarding which the same purposes are shared by different groups just as soon as the value of the purpose is clearly realized.

The real problem, however, is in regard to issues where such a commonalty of interest does not seem so obvious. Take, for example, the question of the possibility of employees becoming interested in high productivity at low unit cost. It would seem that the only attempt to make the employees adopt this purpose which has any likelihood of being successful is one in which all the contributing conditions make the employees realize that they have more to gain than to lose by working harder.

They have more to gain than to lose if they earn enough more, if they are not over-fatigued, if they do not more quickly work themselves out of a job, if they can share in the greater gain accruing in profits, if their sense of accomplishment is enhanced, etc. Any plan which will give them assurances on these points has a good chance of their accepting it.

In practice, this realization is actually being obtained by a combination of methods. (1) Some type of incentive payment method is adopted either with or without some differential piece rate under which the employees' rate increases both relatively and absolutely as the productivity increases and as unit costs decrease. (2) Some assurance of regular work or regular income is given so that the employees will not feel that by working hard they are working themselves out of employment. (3) Another requisite is assurance that there will be no rate-cutting unless the character of the job is radically altered.

Given these several procedures for protecting the employees, it has been found possible to bring employees into agreement with the management's purpose of increased productivity. If, however, the employees come, with their new experience, to the point of making a careful analysis of the entire economic situation of the company which employs them, they may find that despite all these provisions there is still a rate of profit being made for the stockholders which seems to them unduly high. If, and when, employees feel that by the outlay of their energy on behalf of productivity, even if it is relatively well repaid, they are making unduly large profits for managers and investors, it may still be hard to retain their cooperation—that is, hard to get them to adopt the purposes of these other groups.

Indeed, it is in part because of a sense that such a questioning feeling may possibly arise among employees that certain companies have been led to experiment with the method of stock sale to employees or with profit sharing. Both of these devices aim by the use of somewhat different legal means to effect an identical psychological result, namely;—to make it worth the employees' while to interest themselves in the creation of profits, because they are in turn to be sharers of them.

Another possible step in the employees' experience with an extension of knowledge and power in shop affairs would be (and is already in a few companies) a desire to share in decisions about the major policies of the company because of a realization that such decisions must inevitably affect their group destinies more or less directly. If the logic or pressure of this purpose leads a company to allow the election of one or two employee members to the Board of Directors, this may constitute another step in the direction of integrating and harmonizing purposes. For once a corporation has, for example, a shop committee with some power, an incentive payment plan which is felt to be fair, guaranteed employment or compensation, a sharing of profits by employees through a substantial minority stock ownership, a sharing of ultimate direction by employees,—the result will be that the employees are in a position where they may naturally share in forwarding the same purposes as the investors and managers to a degree which would not today be possible or be safe.

What happens however is not, strictly speaking, that the employees adopt the purposes of investors or managers. For these two groups have at the same time had to modify *their* typical purposes in order to bring the employees into working agreement. They have had to modify desires to the extent of letting the employees in on a share of the profits, of paying them during periods of idleness, of giving them information heretofore considered confidential, etc. The result is a new purpose or set of purposes satisfactory to all concerned. And they prove satisfactory because in the process of experience each group has found the old purposes inadequate to give them what they find they want, and has found that a modification in purpose is not as bad as it might theoretically have seemed to be in advance,—is, indeed, when experience shows it in its true light, desirable and satisfying. And one of the elements in the experience of showing it to be satisfactory is the realization that the purposes of the other groups are also changing.

Whether or not, under the conditions outlined above, the customers and the general public can be in harmony with the shared purposes of these other three groups constitutes at present a real question. And the creating of conditions under which they will share purposes with the three is going to require a good deal of inventive thinking. Much depends on the direction in which the new common purposes of investors, managers and workers become modified. If they virtually conspire in a given case to raise dividends, salaries and wages and take it out of the public in high prices or shoddy goods, there is no possibility of a further integration of such purposes with customers. But if the combined desires of the three primary agents in production look toward rendering public service consciously and willingly on reasonable terms, they will find consumers and everyone else sharing their purpose.

Most emphatically, it is not to be understood that the examples of devices which have been used to illustrate attempts to reconcile the purposes of different groups are here being completely endorsed or recommended as anything like panaceas. They are rather given as illustrations of attempts more or less successful to carry into practice a principle which it is the thesis of this discussion to support and advance for practical application in whatever ways inventive managerial minds can hit upon; the thesis, namely, that the sharing and harmonizing of purposes by managers and workers requires the creation of attendant conditions and terms in a setting where the growth of everyone's purposes is a natural result of the whole experience.

There has been, in short, some slight measure of success already attained in a certain few companies in establishing and giving effect to purposes which can be shared in and worked for by the different groups in industry—or at least, some of them. And it is not difficult to project out of modern tendencies a conception of an industrial republic (of producers) in which our usual notions of democratic organizations have been put into effect and have been reconciled in practice with claims of efficiency, economy and productivity.

This brings the discussion to a point where it seems possible to answer the final question.

VII. A Constructive Principle

Do any principle and any method suggest themselves from this analysis which will help managers to bring to pass a greater integration of the several group purposes in industry than exists today? The answer to this question seems to be in the affirmative. Methods are available, and new ones will undoubtedly be devised, which will create a situation in industrial and mercantile corporations, and perhaps in whole industries, where it will be to the definite interest of different groups to espouse purposes which they could not safely espouse before. These may be purposes of productivity, of profit, of public service, or of some other sort. Considerations of the relative social validity of the different types of purpose is not here in place, although it is probably true that whatever purposes are found to secure simultaneously the adherence of the largest number of the affected groups will be socially the most valid.

One important principle is that *group purposes cannot be changed solely by exhortation or by appeals to the intellect.* Purposes change only in the process of active experience. How the change gets its start has already been shown. It is by the impact of actual events into which the individual or group is more or less inevitably thrust. Let one unsettling suggestion regarding present purposes enter, or one failure to achieve present purposes occur, and as new experience follows, activity is at once either tending to confirm or to deny the validity of some already tentatively influential new purpose. Experience has already tended to suggest a purpose which is more tenable and likely of fulfillment.

A vital corollary of this truth is that individuals or groups do not accept the purposes of others ready-made. One writer has wisely pointed out that for specific purposes to be fully apprehended one must have a share in accepting them as well as in deriving ways and means of realizing them. This should really be axiomatic, since purposes which are taken over and given only intellectual assent have not come through the vivid and vital channel of motor experience, and thus have not the living quality which is necessary to make them influential in conduct. The process of sharing in the formulation of a purpose and in inventing the means of realizing it provides a strong psychological presumption in favor of having it continue to influence action. This fact gives support to the case for the use of the so-called "democratic method" of conducting organizations in a way which can only be mentioned here.[6]

The definite principle to be evoked as the outgrowth of this study is that *where the purposes of groups are in conflict, the only way to secure a basis of genuine cooperative activity is to modify the purposes in the direction of others which are acceptable to the several groups; and this modification can come about only by the invention and use of methods and procedures which allow the groups using them clearly to benefit from them and thus to change their purposes.*

This principle may not at first glance seem either very illuminating or very valuable. Yet it calls attention to three homely truths about the industrial problem which merit emphasis and which need all the scientific re-enforcement they can get. It calls attention, first, to the impossibility of getting far with industrial peace while the purposes and desires of groups *are* at odds, limited, narrowly construed, ingrown. Second, it emphasizes the necessity of using the occurrence of problem or difficulty as the psychological time to inject new ideas and methods. And third, it calls attention to the necessity for courageous experiment and new insight in the direction of methods and structural arrangements which will be the outward condition and channel for allowing people to manifest goodwill and generous purposes without being imposed upon or exploited in the process.

Discussion

Elliott Dunlap Smith.[7] Mr. Tead in announcing the theme of his paper said: *"The purposes and motives which actuate managers in their work are as important to its true success as their methods."* In elaborating this theme he has addressed himself primarily to the problem of integration of group purposes. His statement, however, has such important implications in regard to the conduct of individual managers in handling their daily work-shop problems as to deserve further consideration in this regard.

In dealing with the behavior of the individual manager, it is important not only to distinguish between specific and basic purpose, as Mr. Tead has done, but between objective and purpose—between what the manager *is doing* and what, to use a work-shop phrase, he *"is after."* A manager in performing an act of management usually has a definite objective in mind—a specific result which he is trying to accomplish. If he is asked *what he is doing*, he will answer by describing that result. He also has in mind a *method* of acting so as to get this result. But quite apart from his method, or his immediate objective, is the reason he wants to get this result, *the thing he really "is after," or, to speak more psychologically, his motivating desire or purpose.*

For example: a manager decides to introduce employee representation into his plant. He calls a mass meeting and proposes a preordained constitution. He tells his board of directors that he has done this in order to quiet the restlessness of his workers and forestall unionization. In this case his immediate objective is to establish employee representation, his method is the mass meeting and the prepared constitution, while his purpose is to defeat unionization. Exactly the same plan might have been carried through for various other purposes, such as the desire to provide a means of better mutual understanding between managers and employees. Again, a superintendent hears an employee's appeal against what the employee claims was unjust discipline by his foreman. What the superintendent is doing is deciding a case of discipline, his method is to hold a hearing at which both sides are represented, but his purpose may be to save the foreman's face, or to appear like a good fellow to the employee, or to find out the truth and make a just decision, or some combination of these.

---

[6] See John Dewey, "Reconstruction in Philosophy," page 209. "The best guarantee of collective efficiency and power is liberation and use of the diversity of individual capacities in initiative, planning, foresight, vigor and endurance. Personality must be educated, and personality cannot be educated by confining its operations to technical and specialized things, or to the less important relationships of life. Full education comes only when there is a responsible share on the part of each person, in proportion to capacity, in shaping the aims and policies of the social groups to which he belongs. This fact fixes the significance of democracy. It cannot be conceived as a sectarian or racial thing nor as a consecration of some form of government which has already attained constitutional sanction. It is but a name for the fact that human nature is developed only when its elements take part in directing things which are common, things for the sake of which men and women form groups—families, industrial companies, governments, churches, scientific associations and so on."

[7] Division Manager, Dennison Manufacturing Co., Framingham, Mass.

All of us who have worked in factories know that what a man "is really after" is rarely a simple thing. Work-shops are too complicated for that. In most acts of management there are several purposes—several things the manager "is really after," each in their own right. Furthermore, the relative strength of the elements in this complex of motivating desires is subject to rapid change. Some small untoward incident in a hearing of a grievance may shift the predominant desire of the executive in charge from a desire to find out the truth to a desire to put the Employee Representative in his place. In the same way, a more fundamental purpose, for instance, the desire of employees for food, shelter and clothing, may by a rapid increase in wages, such as occurred in some trades during the war, become almost wholly inactive and the hitherto relatively latent purposes of securing agreeable working conditions and leisure become predominant. A condition may thus arise where the economic incentive fails to operate, and the larger the pay the less the laborers are willing to work.

In order to understand the conduct of a factory executive, therefore, it is not enough merely to know what his methods are and what he is doing, nor even what are the several things he "is after"—it is necessary to know the relative influence of his several purposes, and especially what purpose, or purposes, are predominant at the particular time. Curiously, what an executive's predominant purpose, or purposes, are is something particularly hard for him to know. While it is usually perfectly clear to all concerned just what he is doing, what he "is really after," as Mr. Tead has indicated, is often far from clear, especially to himself. A foreman, who goes over to another department to explain a misunderstanding in regard to an interdepartmental order, may think that explanation is his real purpose when in fact the primary thing he "is after" is to get a chance to tell the foreman in that department (who had recently annoyed him) just what he thinks of him. A manager who institutes some spectacular scheme of welfare work may think that he is doing it out of concern for his employees' well-being, when in fact his predominant purpose may be to make larger profits, or merely to show off.

But assuming all this, why is it that a manager's purpose is as important as what he does, or how he does it? The answer is, that as one wishes or purposes, so in the long run does he act. While superficially his actions may conform to what he thinks he is doing, it is rare indeed that his true purposes do not control his more subtle conduct and cause him to act so as to get what underneath he really desires. People usually do the things that get them what they want, and if they try to act as if they "were after" something else, they are usually more successful in fooling themselves than anyone else. To this management is no exception. If the primary thing our foreman "was after" was to get a chance to give his colleague "a piece of his mind," it is relatively unimportant that what he was doing was explaining a misunderstanding or that his method was one of deliberate courtesy. Carefully hidden innuendo, and tones of contempt within the form of courtesy, would disclose his real purpose and the affront would, if anything, be the more keenly felt because it was clothed in the velvet of artifice. To act a part is for this reason always dangerous. It is especially so with the manager. He is in daily and intimate contact with the same employees and colleagues for an indefinite period, and the acting of a part under such intimate and sustained observation is far more of an ordeal than any requirement of the stage. Moreover, he is dealing for the most part with employees —with unlettered people whose whole development has taught them to judge by observation, not by words. For this reason they share the baffling capacity of children to see through subterfuge and sense the spirit behind. Among employees, even more than among more lettered men, does what one "is after" speak so loud that they can't hear what one says.

On this account, in the development of executive technique should we not lay greater emphasis than has hitherto been customary on the development of purpose? If our purposes as managers are right, will not fairly crude methods succeed? If our purposes are awry, will perfection of technique or program avail us? Is not the primary task of a manager in handling industrial relations problems, whether as a foreman or as president, to establish and to maintain in his own mind right purposes in regard to these problems? For example, in handling the broader problems of general industrial relationships, will either employee representation, employee stock ownership, unemployment insurance, or profit sharing bring about a more cooperative relationship between workers and managers, if what the management "is after" is to keep the workers quiet and thus be enabled more effectively to exploit them? Again, is not the most important element in managerial technique in any case of individual discipline the careful establishing and maintaining throughout of the purpose of seeking openmindedly for the right, in spite of the many and insidious temptations to let this purpose degenerate into a desire to win out or to save one's face?

The control of purpose—of what one is after—is far from simple. As purpose is so often different from conscious intent or objective, it is very elusive. Purpose being emotional—being a question of desire—is not subject to direct, deliberate control. We cannot just decide on a particular purpose—as we can on a particular objective—and then act accordingly. We cannot just decide that our purpose will be to seek the truth openmindedly, any more than we can decide that we will like to listen to classical music. A changed purpose, like any form of changed desire, must ordinarily be gradually ingrained into one's personality. Usually, as Mr. Tead has pointed out, this is a process of habit formation. If a manager constantly thinks out purposes that are adequate to the situation, if he constantly watches himself to check the lightning invasions of inconsistent, primitive desires, he will gradually build up habits of desire that will cause him more and more truly to "be after" those adequate ends he has devised. In this way, technique in objective and method join hands with the technique in purpose.

Regardless of how purpose is created or controlled, the fact remains that from the point of view of the individual manager, as well as of the major industrial groups, purpose is as important to successful management as immediate objective or method. For, if one looks beyond the superficial, one's true purpose, in the long run, controls what one does, how one does it, and the results one gets. Accordingly, great though the importance of program and method may be in successful management, we must never forget that much of their importance lies in their effect upon purpose, and that the most fundamental problem of managerial technique is devising or determining proper purposes and helping individuals to acquire and maintain right purposes once they have been determined.

N. I. Stone.[8] Mr. Tead's paper reminds me of Horace Greeley's famous saying, "the way to resume is to resume," when this country was confronted with the problem of the resumption of specie payment.

The way to eliminate conflict among different groups in industry, says Mr. Tead, is to substitute harmonious purposes for conflicting ones. The lion should lie down with the lamb, presumably with the lamb on the outside. Each should give up some part of its purpose insofar as they are in conflict with the purposes of the other party, and a new set of purposes more in harmony with each other will arise, and bring about cooperation between the different groups in industry.

It is difficult to find fault with the recipe when reduced to these simple terms. The difficulty will lie rather in getting the patient to take the prescribed medicine.

Stripped of its psychological terminology Mr. Tead's thesis discloses that the dominating motive of group action lies in the economic interests of the individuals comprising the group. Managers, particularly those charged with industrial relations, have been too prone to believe that plant loyalty and harmonious cooperation could be built up by means of perfected methods of employment and by the use of some magic word or slogan, which ignored, glossed over or denied outright the existence of conflict of interest, or regarded it as the invention of the industrial devil—the agitator.

Mr. Tead with refreshing candor recognizes the existence of conflict of interests between different groups, but seeks effective ways of turning the conflict into a creative force from the destructive force which it has been, as a rule, so far. There is no gainsaying the fact that in the division of the product of industry, the interests of employer and employed are in conflict. All things being equal, the more the employer retains for himself as profit, the less there is left for the worker as wages, and vice versa. The Socialist and the trade-union leader have made excellent use of this fact in their efforts to organize labor into trade-unions and on political class lines. The old fashioned employer and mill superintendent has obligingly furnished chapter and verse for the use of the union organizer and socialist agitator by his arbitrary assertion of power and all too frequent disregard of the human interests of his employees.

---

[8] Consultant in Management, New York City.

The mere denouncing of the agitator and the bald assertion of a community of interests of the employer and employee has not served to change the real attitude of mind on the part of workers in industry, although there may have been in unorganized industries an outward show of acceptance of the employer's theory to deceive the superficial observer.

The constructive task of management is not to deny the existence of the conflict of interests by sanctimonious cant, nor seek to suppress it by brute force, but, to quote once more Mr. Tead's apt phrase, "to make of industrial conflict a creative instead of a destructive force."

Sharing the predilections of my craft, I prefer economic terms to Mr. Tead's psychological terminology. Taking up, then, the formula that "all things being equal, the greater the part of the industrial product retained by the employer, the less there is left for the worker," how is management to deal in perfect candor with this proposition and yet turn the conflict into a constructive force? The practice and experience of a few decades of scientific management have provided a richly stocked arsenal of facts which serve to prove conclusively that things do not remain equal in industry which is no more free from the workings of the law of evolution than any process of nature.

Is a shorter work-day to be an object of strife between the employing and employed groups? "Most assuredly," says the labor agitator: "the less hours we work, the less we produce, and the greater will be the demand for labor and the higher the wages." "Most assuredly," echoes the old fashioned employer, who opposes the shorter work-day for the same reasons that the union leader demands it. Though ready to fight each other to the point of extermination, the two extremes meet in touching unanimity as to the effect of the shorter work-day in lessening the output of labor. Scientific management, which, true to its name, prefers observation and experimentation to a priori assumption, discovers that things do not remain equal with the reduction in hours, and, that the increased productivity of labor, relieved of the fatigue factor, more than makes up for the loss in hours.

Mr. Tead's paper is replete with other instances of advanced practice in management, which starting as concessions to labor to the apparent detriment of the interests of the employer have turned out to be beneficial to both.

Elimination of conflicting interests in industry is impossible so long as there are distinct economic groups contending for their respective shares of the industrial product. However, intelligent analysis, honest facing of facts and courageous experimentation with a view to a constructive solution of industrial problems can take the place of industrial warfare, provided management takes the lead and gives unmistakable evidence of honest intention to act according to the findings of fact, which implies willingness to share with the other groups the benefits derived from improved methods.

It would seem that in a discussion of purpose as a psychological factor in management, account should be taken of the two distinct elements which go to make up the so-called management group: the owners of industry, as represented on boards of directors and the professional salaried element in management. The two are not always actuated by identical purposes. So far as the professional element in the management groups is concerned, I believe it may be safely said that on the whole it is well familiar with the facts and tendencies brought out in Mr. Tead's paper. If this element had the final say about management policies, we would probably be much farther advanced along the road of constructive cooperation between industrial groups than we are at present. It is the owner element in management which presents no less serious a problem than the labor leader in a program such as Mr. Tead outlines. This is the element which today has the final say in the shaping of industrial policies.

It has the power to further or to mar the work of the professional manager, and yet this power is not based upon individual fitness or professional training, but solely on the legal title of possession. Its vision is frequently blurred by self-interest, and the pocket nerve is no more helpful as an aid to a sound industrial psychology than is the incitement of the agitator at the opposite end of the industrial scale. The overwhelming majority of owner-managers in industry is not made up of Dennisons, Feisses and Filenes. An intensive study of this group, of its mental reactions against the background of its economic interests, of its mass psychology should furnish no less fruitful a field for the industrial psychologist than is offered by the mass of industrial employees.

A. T. Poffenberger.[9] Mr. Tead has made a very significant contribution to the solution of the problems of management by directing attention to certain fundamental facts of human behavior. Purposes like murders will out. It is a difficult matter for a manager to have a set of purposes and a set of actions that do not correspond. To introduce devices, for instance, that are ostensibly for the welfare of the worker, when the real purpose is merely to increase output, is to create an artificial situation, that will sooner or later be detected and lead to difficulties.

---

[9] Associate Professor of Psychology, Columbia University.

Mr. Tead is right in stating, further, that the purposes of all men, when reduced to their lowest terms, are identical or very similar. Such purposes are based upon the commonly inherited desires or instincts. And all the environmental influences that mold human nature tend to make these desires and purposes more uniform, or at least to keep them from becoming more diversified. One of the most potent of these influences is example. It is so potent because of the natural tendency to imitate, to copy and to emulate. We tend to want what we see others have—such is the basis of fashion. The newspapers, radio, motion pictures, means of rapid transportation and communication, and many other modern devices acquaint everyone with the mode of life of everyone else—they make all men neighbors in one respect at least, namely, in their wants. In this uniformity of wants Mr. Tead sees the basis of uniformity of effort. Why should not all men with like or similar wants work together for the satisfaction of these wants? The laborer, the manager, the owner, the public, with their common purposes should unite to do the best for all.

Such a program has in it one very serious error. It overlooks differences in *power,* in the midst of likeness of wants. There can be no question today that men are born different in power. (For purposes of illustration, we may think of power in terms of intellect, or intelligence, but it is probably more than that.) And environmental forces—education and all the other more casual forces—tend to magnify the natural differences in power. For instance our modern systems of education are looked upon as instruments for the development of each individual according to his capacity, and similar training has been shown to make people more different rather than more alike.

In these contrasting characteristics of purpose and power, the former tending toward uniformity and the latter toward difference, we have the basis of much of the industrial unrest. For accomplishment and remuneration depend more upon power than upon desire or purpose. Given equivalent desires in the laborer and the manager for the good things of life, and different power to get them, you have the basis for discontent and resentment. Thus it appears that likeness of purpose is the basis of conflict, rather than the basis of agreement among the various factors in industry.

In the limited time allotted to me, it has been possible merely to suggest the importance of power as contrasted with purpose, and to offer nothing in the way of proof. The remedy for the situation as I have outlined is neither simple nor easy. The social philosopher suggests that our notion of values is all wrong, that—to put the matter bluntly—the returns for work ought to be based on purpose and not upon power. Any job done to the best of one's ability would be equal in value to any other job done likewise, even if one be a laborer and the other the executive of a corporation. Thus all men would at once be made equal not only in purpose or desire, but in the possession of the means of satisfying the purpose or desire, by the mere shifting of the basis of values. It is not my intention to support such a remedy as this, or to offer any remedy of my own creation, but merely to show what I believe is a very serious difficulty in one section of Mr. Tead's splendid project.

Principles of Teaching

AT a meeting of teachers of management held under the auspices of the Taylor Society in connection with the December meetings, a stimulating address on basic principles of teaching was delivered by Paul Hanus, Professor of Education, Emeritus, Harvard University. In response to the suggestion of many of those present, a compact outline of Professor Hanus' address has been prepared in a form suitable for framing. Believing that leadership in management is essentially a task of teaching and that the basic principles of teaching in the class-room apply to management as a teaching function, the Taylor Society is pleased to make Professor Hanus' outline available to all readers of the Bulletin. The outline has been printed on the back cover so that it may be removed for framing without impairing the Bulletin for binding.

Next Meeting

Friday, February 5, 8:15 P.M.

New York

Some Recent Applications of Motion Study[1]

How a Study of the Processes of Production and Shipping of Roofing Materials Led to Standardization of Methods and Equipment With Resultant Economies

By JOSEPH A. PIACITELLI
Engineer, The Barber Asphalt Company, Maurer, N. J.

THE effective exertion of human effort goes hand in hand with economy in production. The mental phase of this question is of great importance to psychologists and educators while the physical is of interest to the engineer.

Physical effort may be considered from many angles, but that which concerns us most is labor effort. Permit me then to consider this subject from the point of view of operations; of motions or their smallest units, therbligs.

Since motion study is not new to most of you, I will not attempt to discuss its fundamentals or its development as a science, but will confine myself to some of the recent practical applications in the production and shipping of roofing materials at one of the Maurer plants of the Barber Asphalt Company and to the methods we have provided to maintain the results accomplished.

Stapling and Packing Shingles

In one of our Middle Western plants a machine was developed for the stapling and folding of latite shingles. This machine requires the services of four men, while the one which we were using at Maurer at that time on the same work employed an organization of seven. It was not until machines of this new type had been in successful operation for one and one-half years at the other plant that they were installed at Maurer. The men operating the old machine were given places on the new; with very few exceptions the same methods were adopted; in this way we sought to transfer the skill and experience from one type of machine to the other. In spite of the fact that these men were already trained they were unable to make a fair day's output. Thus one of our first problems at Maurer was to find a more economical method of performing this work.

We began our studies by considering the complete process of folding the 16-in x 16-in. latite shingles and by analyzing each sub-operation with the aim of eliminating unnecessary motions and unnecessary fatigue. It was found that each man had been allowed to develop his own method and in the various sub-operations such as feeding the shingles into the machine and packing them after they had been discharged from it, the touch of individuality was quite prominent. Each of the men performing the operation felt that his method was the best. The correct one could only be determined by a careful analysis of the number of motions involved, their character and their sequence. Since the output of the machine was controlled by the feeding operation, this marked the starting point of our studies.

The complete cycle of motions was made by the feeder in approximately one and one-half seconds, comprising in all 10 elements of motion or therbligs. Of these 10, 8 were performed by the right hand; hence during eight-tenths of the cycle the left hand remained idle, and the time for the complete cycle was wholly dependent upon the work of the right hand. Further analysis showed that the right hand grasped the shingles once more than was necessary because it did not properly do so at the beginning of the cycle. The left hand merely held it while the other was in the act of changing grasp. The unnecessary "grasp" and "release" were eliminated and the work was so arranged that the two hands performed an equal number of elements of motion simultaneously, thus giving an equal burden of four therbligs to each hand. This study resulted in the reduction of time to one half of the original and increased the output of the feeder 100 per cent. We have chosen this example because of its simplicity; it is our opinion that it fittingly illustrates the fundamental principles of motion study.

---

[1] Paper presented at a meeting of the New York Metropolitan section of the Taylor Society, November 19, 1925.

As a result of this analysis we were able to feed the machine at a much faster rate than the men at the discharge end could pack the shingles. It was quite natural for us then to exert our efforts towards devising a better method of performing that operation. Study of the sub-operations in the old packing process resulted in a radical change in the equipment. The old method of packing involved first, inserting a knock-down carton in a fixture mounted on a tying bench equipped with casters; second, stacking a definite number of shingles in the fixture; and third, tying the carton of shingles with four wires.

Analysis of these sub-operations showed that the stacking could be made simpler and easier to learn by reducing the number of positions in which the shingles were stacked. Some variation is necessary to provide for an even distribution of the added thickness caused by a fold on the corner of the shingles. However, the questions in our minds were: How many of these variations can we eliminate? What arrangement of the shingles will make possible a method involving fewer and simpler motions and yet maintain the quality of the package?

Our answers to these questions is a method which requires that the shingles be stacked in two positions instead of four. This reduced the stacking cycle from four to two sets of motions, thus enabling the new employee to learn the method involved in his work more quickly. Meanwhile the motions necessary to do that work were simplified and made less fatiguing by changing the relative heights of the discharge plate of the machine and the stacking table; the shingles are now practically dropped into place, while by the old method they were raised into the fixture.

The study of the next operation, tying the carton of shingles, pointed to many possibilities of savings. By the old method the packer, after stacking the shingles, would push the fixture, which was mounted on casters, to a point about fifteen feet away where the wires for tying the carton were located. In order to tie the carton, which was the next step, it was necessary for this man to position the four wires under the carton of shingles, two in one direction and the others at right angles to them. The manner in which this was done and the amount of time required to do it in proportion to the time required for the complete tying cycle immediately attracted our attention.

To make sure that every phase of the tying operation was analyzed properly, a "process chart" was made covering the cycle of motions in such detail that there was no doubt as to the actual moves the man made while performing his work. But what did the chart do for us? It merely provided a means of making a careful study of the method with absolute disregard of the time element and enabled us to point out possibilities of savings.

Why should the packer be required to move the tying bench containing the stack of shingles a distance of ten to fifteen feet? Why not pre-position the wires instead of positioning them after the shingles had been stacked? Why expect the man to pick up the knock-down carton from the floor, raising it about three feet to assemble it into the fixture for the next stacking operation, when it may be stored in a more convenient place? These practices were only a few of the most prominent symptoms indicating unnecessary exertion of effort. Consideration of all items indicating possible improvements led to the construction of a stacking and tying table composed of two sections of roller conveyors joined to form a unit on which the stacking fixtures are mounted. This unit is divided into two sections to give each of the two packers a separate set of equipment and a definite work place. The use of this new piece of equipment permits the men to do the stacking and the tying work in the same place, thus avoiding the transportation necessary by the old method, and the wires are now prepositioned in approximately one-tenth of the time formerly required. A table made to hold the supply of knock-down cartons at a level above the height of the new stacking device permits inserting them into the fixture with the minimum of effort.

Thus the equipment and machines were changed and rearranged to permit the men to carry on their work in comfort; unnecessary fatigue was eliminated where possible; and to insure continuity of operation, elasticity stations were created between the feeder and the person supplying him—all of which served to make the "One Best Way" effective.

The foregoing discussion has special reference to the folding and packing of 16-in. latite shingles but applies also to the folding and packing process for the 12-in. latite shingles, because many of the sub-operations are common to both. The stacking cycle for the 12-in. shingles, however, consists of four sets of motions and the box of shingles owing to its smaller size requires only two wires. The same organization is employed in folding these shingles but because they are smaller and have a lower covering factor, the amount of work required to fold and pack one-half square of these shingles is approximately equal to that required in producing one square of the 16 x 16-in. latite shingles (square meaning the number of shingles required to cover 100 square feet of roof.) With the above in consideration, one box of one-half square of the 12-in. consisting of 86 shingles and a package of one square of the 16-in. requiring 82 shingles were placed on the same basis.

Changes in the Shipping Department

Having developed the methods of folding latites to a satisfactory degree our attention was turned to the shipping problem.

In case of shipment by freight cars the work may be divided into two major operations, namely, loading the product, and bracing it so it will reach its destination undamaged.

One man of each loading crew was found to be doing the work which a curved section might do, transferring the product from a conveyor, which received it from a chute, to a conveyor leading to the inside end of the car. After experiment with the various types of gravity conveyor curves, the solution of the problem was effected by the installation of a special 3 rail, 2 roller curve with its outer end elevated to give a 5-in. banking. Both ends of the curve are of the same height, making it reversible for the purpose of loading both ends of the car with the same unit. The chute end of the curve is connected by an 8 foot section of roller conveyor and the discharge end by a 12 foot roller conveyor unit made up of three 4 foot sections capable of being disconnected as the car is loaded.

Beside the elimination of one man from each crew another benefit has been secured, an increase in elasticity between dropping the product inside the chute on the upper floor and receiving it in the car, which results in an increase in tonnage loaded per hour. The men feeding the loaders can now drop the product down the chute at a varying rate of speed, while by the old method the flow down the chute was governed wholly by the man at the turn. Our records show that the new curve enables the crew to do better in spite of the fact that it has been reduced by one man.

The second item considered was the standardization of the method of bracing cars; an analysis of this phase of the work yielded the fact that the car bracer spent more than one-half of his time sawing lumber to make braces and cleats of the desired lengths, thus decreasing the loading ability of the crew. With the aim of using ready cut lumber, the widths of approximately sixty cars were measured in order to arrive at some common lengths for braces. The standards of lengths were set at 102-in. and 103-in. for braces with a tolerance of ±½-in. and 36-in. for cleats with a tolerance of ± 2-in. Next followed an investigation of the relative holding ability of 2-in. x 4-in. and 2-in. x 6-in. lumber. It was found that the chief cause for defective bracing was not the weakness of the braces nor an improper number of them, but the way in which they were fastened to the sides of the car. The 2-in. x 4-in. ready cut braces and cleats have replaced the 2-in. x 6-in. lumber length for length, thus cutting the consumption of bracing lumber 33 per cent from that point of view alone, while maintaining the former strength and quality standards. Of course the ready cut lumber is more expensive, but the additional cost is practically negligible when compared with the saving.

Standing orders have been made effective to facilitate the work of the loading crews in every way possible. One of them keeps an aisle open through a particular section of the roofing plant warehouse, making it possible to convey finished products to cars or trucks with the shortest haul practicable. Another keeps clear at all times a definite portion of the floor area around the chute openings on the upper floor of the warehouse, thus saving the time generally lost by the crew in cleaning the floor about the chute openings.

The equipment and tools required in every phase of the shipping work have been standardized. To make sure of their availability at all times and to avoid unnecessary transportation each crew has been supplied with a steel cabinet located as near as practicable to their places of use.

Standardization of these items, methods, materials and tools has contributed towards an ample reduction in the unit cost of shipping.

Aside from the problems and solutions which I have described, motion studies were made of other operations, such as cutting and packing 10-in., 12½-in. and extra heavy strip shingles; cutting 12-in.

and 16-in. latite shingles; cutting and packing regular and extra heavy individual shingles. In each case we did not fail to effect economies in production, primarily by reducing the waste of labor effort.

It would indeed be a waste of effort on my part to attempt to give a lengthy description of each of these studies, when a simpler method may be successfully employed. I will then resort to the visual method of putting across information. Some of the slides[2] I have selected will also throw more light on the problems which I have already discussed.

Results of Improvements Effected

Figure I shows the rates of production at 12-in. and 16-in. latite shingles at our plant compared to those at the Madison plant.

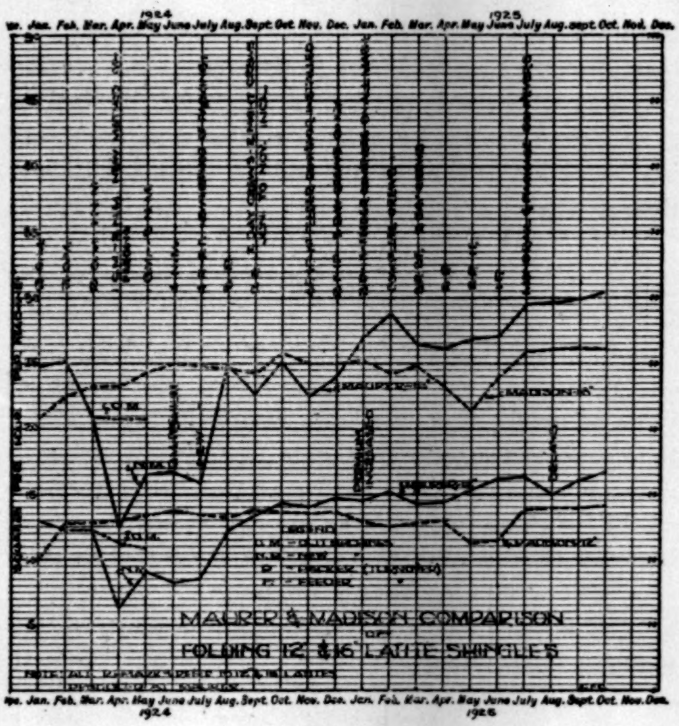

Figure I

Please note that the first of the new machines was installed in March, 1924—the point for that month representing the average rate of output for both the old and the new type although the latter was operated only a few days during that month. From that time on, however, the rates were plotted separately in order to show just how much each type of machine contributed to the average rate of production for each month.

Let us now analyze the graph representing the rates of folding the 16-in. shingles and see what effect our work has had on production.

In April, 1924, one of the new type of machines was operated and its rate of output during that month is shown to be very low, approximately 12.5. Our work began at this time and during the latter part of the month we established the new method of feeding, the result of which is shown by the rise in the graph to a higher level which was maintained until August, 1924, when the new method of packing was made effective. The solution of the packing phase of the process contributed more than any other towards the increased rate of production, as is shown also by the graph made for the 12-in. shingles, which is, with few exceptions, quite similar to that for the 16-in. shingles.

Having installed the new methods of feeding and packing, our problem became primarily one of fatigue reduction. You will note that a "feeder conveyor" was installed on one of the machines in November, 1924. This was done with the aim of minimizing the transportation of shingles by the man supplying the feeder who approximately every minute carried a stack of shingle squares, weighing from 50 to 75 pounds, from the heater to the feeder, an average distance of 8 feet.

Two months later this type of conveyor (gravity carrier) was installed on all machines; these have reduced the transportation to approximately two steps. The good effect of fatigue reduction in this sub-operation is evident in the rise in the rate of output to a new level (January, 1925) which was maintained until July, 1925, when the next step was taken towards fatigue reduction.

Perhaps one of the most interesting points in this plane of production rate is that of February, 1925, which, when compared with rates of output for the months of January, March, April, May and June of the same year, indicates the importance of reducing the labor turnover on this work. The labor turnover for each month is indicated by the abbreviations 3P, 2F, etc., (3 packers, 2 feeders, etc.) and the absence of turnover during the month of February, 1925, explains, to our satisfaction, the comparatively high mark reached during that month. You will note also that during this period the number of packers replaced is more than two times the number of feeders; the answer to this may be given in the word fatigue. The packer, in performing his work, was required to stack each bundle of shingles weighing approximately 125 pounds onto a loading platform and it was often necessary for him to lift it approximately 3 feet in doing it. At a moderate rate of speed this was done every 4 minutes. We cannot expect a man to maintain a high rate of production when he is burdened with heavy work.

---

[2] It is impracticable to reproduce here all of Mr. Piacetelli's slides. The graph presented shows the results obtained by the work he described.—Editor.

To remedy this condition we installed a roller conveyor enabling the packer to get rid of the package without lifting it by merely pushing it off the stacking-and-tying fixture onto the conveyor. By this method the package moves down to the other end of the conveyor from which it is lifted and stacked on a loading platform by the trucker who is equipped with a hand hoist suspended from a monorail trolley.

The installation of these fatigue-reducing devices produced the expected results: lower labor turnover, which for the past three months has been zero; and the maintenance of a high rate of production as is shown by the last three points charted. Although these devices were used also in the production of 12-in. latites, they had no marked effect on the rate of output as may be noted by an inspection of the curve below. This may be explained by the fact that the box of 12-in. shingles weighs about 75 pounds and that the fatigue resulting from this work was not enough to affect production seriously, while in the handling of the 16-in. package weighing 125 pounds fatigue was a very important item.

The Madison plant represented by the dotted lined graph has made very little improvement, if any, during the past year and our explanation of this is that they have neither applied the principles of motion and fatigue studies nor standardized their methods.

In brief, the results of our work are as follows: The rate of folding and packing 16-in. latites has been increased from an average of approximately 16 squares per hour to 30—an increase of about 87 per cent over our former method and 15 per cent above the present rate of production at our Madison plant, where the principles of motion study and standardization have not been applied. Production of 12-in. latites has simultaneously been increased 88 per cent and 16 per cent above the present rate of the Madison plant.

Other studies affecting the cutting and packing of the seven types of shingles which I have described with the aid of lantern slides have resulted in increases in production varying from 3 to 21 per cent.

The rate at which these shingles are produced depends largely on the movement of the material through the production machine, which is a continuous process, and a word or two should be written to explain this condition. Each production machine may be divided into three sections. In one the dry felt is unrolled, run into a festoon serving as an elasticity station, then into a tank where it is saturated with asphalt, and again into another festoon where it is allowed to cool before it is put through the next operation. In another section each side of the saturated sheet is given an asphalt coating, the top side later coated with granular slate and then cooled. In the third section, the roofing material is run into the cutting machine where it is cut into shingles of the desired type. Our studies have been confined to the packing operation at the cutting ends of the machine and though the new methods enable the packing crews to pack faster, their output depends entirely on the rate at which the roofing material is made at the other sections of the machine. We feel, however, that in improving the packing methods, which were some of the limiting factors from the point of view of production, we have removed one obstacle to a uniform production rate. Our attention is now on the operations performed on other sections of the machine; as soon as we can control some of the variables in one of the earlier phases of production which is now under observation we will be able to receive the full benefits of our work on the packing operations.

Lower Unit Costs

Increasing production does not necessarily mean obtaining economy and since the manufacturer is vitally interested in the latter I should like to state briefly the effect of our studies on the unit cost of the operations performed on each of the products.

The unit cost of folding 16-in. latite shingles has been reduced 22 per cent; that of folding 12-in. latites 23 per cent; of cutting 16-in. latites 14 per cent; cutting 12-in. latites 20 per cent; cutting and packing extra heavy individual shingles 10 per cent; cutting and packing regular individual shingles 8 per cent; cutting and packing 10-in. and extra heavy strip shingles 5 per cent; cutting and packing 12½-in. strip shingles 5 per cent; and that of shipping 34 per cent.

In the folding of 12 and 16-in. latites the earnings of the men have increased 60 and 51 per cent respectively, while in other operations mentioned, the increase in earnings vary from 1 to 4 per cent. The low figures in the latter cases are due to the fact that the men were earning a fair day's pay before the studies were made and that the new method enables them to do the same amount of work with less effort.

The Maintenance of New Standards

The time and energy devoted to the establishment of the One Best Way would have been expended in vain unless the necessary steps were taken to maintain the newly created standards of methods, materials and tools. Two measures have been taken to do this; first, to make adequate record of these standards and second, to provide a means of perpetuating them.

Standing Orders

The system of written instructions, installed at Maurer, reinforced by charts, layouts, sketches, stereophotographs and motion picture film, has well played its part as the preserving agent in the maintenance of standard methods and in furnishing the untrained man with detailed information as to the best way of doing his work. At present, in the case of folding latite shingles, the inexperienced man learns the correct method involved in his work in a few hours; its standardization has made possible an early attainment of automaticity. Consequently, the learning period has been reduced at least 50 per cent.

The standing order system was installed as a maintenance tool and it has proved itself a valuable means of getting work done periodically and effectively. It has done much as a supervising agent to perpetuate the new standards and to insure their effective use. Standing orders have been suggested by men in various capacities—from clerk to vice-president—affecting every department within the three plants. They cover a wide rang of functions and problems such as production, storage, shipping, receiving, inspection, charting, standards and office management. In the final analysis this system has relieved the executives of much detail and routine work generally requiring time which could be devoted to problems of greater importance.

The Chart Department

A chart department was created primarily for two reasons; first, to keep a visual record of the daily output, delays and waste from each production machine; and second, to find out the factors controlling production of the various products. Each foreman inspects the charts covering the work for which he is responsible and gives us the reasons for the exceptional changes in the rate of production. By such a method we have received many good suggestions; the variables of production have been brought out, giving us the opportunity to study them; and the stimulating effect produced by the continued inspection of these charts has done much to increase the output throughout the plant in general.

Cooperation

It has been our aim to increase, on the part of the men, the desire to cooperate, and we are glad to note here that the men throughout the organization, especially foremen, are taking much interest in the management side of the work. The standing orders which they have written; the suggestions they have given us without the incentive of a financial reward, and the competitive spirit and sportsmanship they often display may be safely used as a basis for measuring the kind of cooperation we are receiving. Fortnightly meetings of the roofing plant staff have been inaugurated to coordinate their work and to develop among them an appetite for good management.

In this paper I have not only considered the applications of motion study, but I have also outlined the maintenance and management features necessary for effective performance. Their influence on the total situation may be explained by the facts that the unit costs have been reduced; the work made less fatiguing; and the earnings of the men increased; all of which indicate satisfactory solutions of our problems.

Discussion

John H. Wellers.[3] It is not the purpose of this paper to add anything to the data and description presented by Mr. Piacitelli, nor to comment upon the details of the methods which he pursued. This paper will be confined solely to a consideration of the results obtained from the activities described and especially with the methods used for measuring the value of such results.

---

[3] Manager of the Maurer Plant of The Barber Asphalt Company

The simple, complete and proper answer to the question, "How can the results of such activities be measured?" is "by the effect which they have on the prosperity of the industry." Now the prosperity of any industry is influenced by a multitude of factors, and, if we are to determine the effect which any one factor has on the sum total of prosperity, we must first determine and eliminate from the problem the effects produced by all the remaining factors. It does not require a great deal of imagination to realize that the complete solution of this problem is humanely impossible. The best that we can do in trying to answer it is to measure the direct effect on some important element of the sum total of prosperity.

The usual procedure in attempts to measure the results of activities, such as have been described by Mr. Piacitelli, is to consider each operation or process by itself and then show "how" and "how much" the direct labor and materials costs have been, or can be, reduced by changes in methods and equipment. Sometimes the solution is made more complete (or at least more complicated) by having the calculations take into account estimated costs for financing, maintaining and amortizing the equipment and other indirect expenses, as well as potential values due to increased production capacity. These solutions are all very well in their place; certainly no substantial change in methods or equipment should be undertaken without first thus estimating the resulting savings in labor and materials costs and, if the changes involve any considerable initial expense and give a substantial increase in production capacity, then account should also be taken of such indirect expenses and potential values, as have been mentioned. But as a means of reviewing at weekly or monthly intervals the actual accomplishments of changes which have been put into effect, this system is too cumbersome. Nor does it give a complete measure for the effects which the changes have had on even such simple elements of prosperity as reductions in direct labor and materials costs. Thus, for example, materials costs may be reduced by substitution of cheaper goods, or by a drop in market prices. The cheaper substitutes may result in a product which is unsatisfactory to the customer or consumer, and this would not contribute to the sum total of prosperity of the industry. Labor costs in one or more plant operations may be reduced in such a way that the workmen who are directly affected become dissatisfied. This dissatisfaction spreads until practically all the workers throughout the plant are affected or infected by it. The result will be that the general average efficiency of all the workers will be reduced and total labor costs may be increased, which would detract from the sum total of prosperity. Considerations of this nature led us to discard this customary method for proving the value of results obtained in our plant through the work described by Mr. Piacitelli.

In casting about for some other method of accomplishing what we were after, we started our investigation by formulating a clear conception of the objects which we expected to accomplish by this work. The description of these objects we finally crystallized in the phrase "Elimination of Waste." Waste we then grouped under three classes. One, waste of equipment; two, waste of material; three, waste of labor.

Up to the present comparatively little attention has been given to the waste of equipment, as this problem is largely beyond plant control. Daily and monthly records of the average hourly rate of production for each of the principal machines give a good indication of the efficiency at which the equipment is operated when in use.

Waste of material is measured not in dollar value, but in physical units, such as pounds or gallons. The measure of such waste is the ratio of wasted material to used material, expressed in percentage. This eliminates all variations due to changes in market price of materials or to substitutions of materials, and gives a continuous record of comparable data.

The methods used in measuring results of our efforts in eliminating these two classes of waste are simple and present no unusual features.

The method which we adopted for measuring the results achieved in the elimination of labor waste consists essentially of a comparison of labor input with production output. These comparisons are made monthly.

The labor input is measured by the number of man-hours for which we pay; that is, we take into consideration all the labor throughout the plant, and not only that part which has been directly concerned with any improved methods or equipment which may have been installed. We are thus enabled to judge whether our work of reducing waste of labor in certain operations has had any effect in getting the workmen throughout the plant to take a greater interest in their jobs and thus bring about the elimination of labor waste on their own account. Our records indicate clearly and conclusively that such improvement in the general attitude and action of the workmen has taken place, and we consider this one of the most valuable results of the work.

The measurement of the production output involved first establishing some arbitrary unit of measure for this complex quantity. The scheme finally adopted measures the area of the principal products. By this scheme we take into account at least eighty per cent of the output, as measured by weight and over ninety per cent of the various products as measured by count. There are, of course, some products which require a great deal more labor effort per unit of area than others, but the proportion of various products to each other remains fairly constant throughout the range of output thus far encountered. This means that our system of measuring the total output does not give absolute values, but does give values which are comparable, when applied to weekly or monthly rates of output.

The following chart, Figure 2, shows the effect of waste elimination on the plant efficiency.

Note the similarity of the two graphs, and that the output per man-hour shows a general and practically continuous rise since the work was started in April, 1924. Before that time it was practically stationary, except for variations due to fluctuations in the volume of business.

It is obvious that this scheme of determining the output per man-hour gives a ratio which is more or less meaningless as a measure of the labor efficiency of the entire plant unless it is considered in conjunction with the volume of the output. This is true because we include in our figures for total man-hours such fixed items as watchmen, firemen, oilers, mechanics, and foremen. For these, the output per man-hour can be increased substantially only by an increase in the volume of output. This is, of course, not accomplished through any one of the activities which have been described by Mr. Piacitelli. We are satisfied, though, that these graphs present a reasonably accurate picture of the savings which have been accomplished as the result of the work described in his paper.

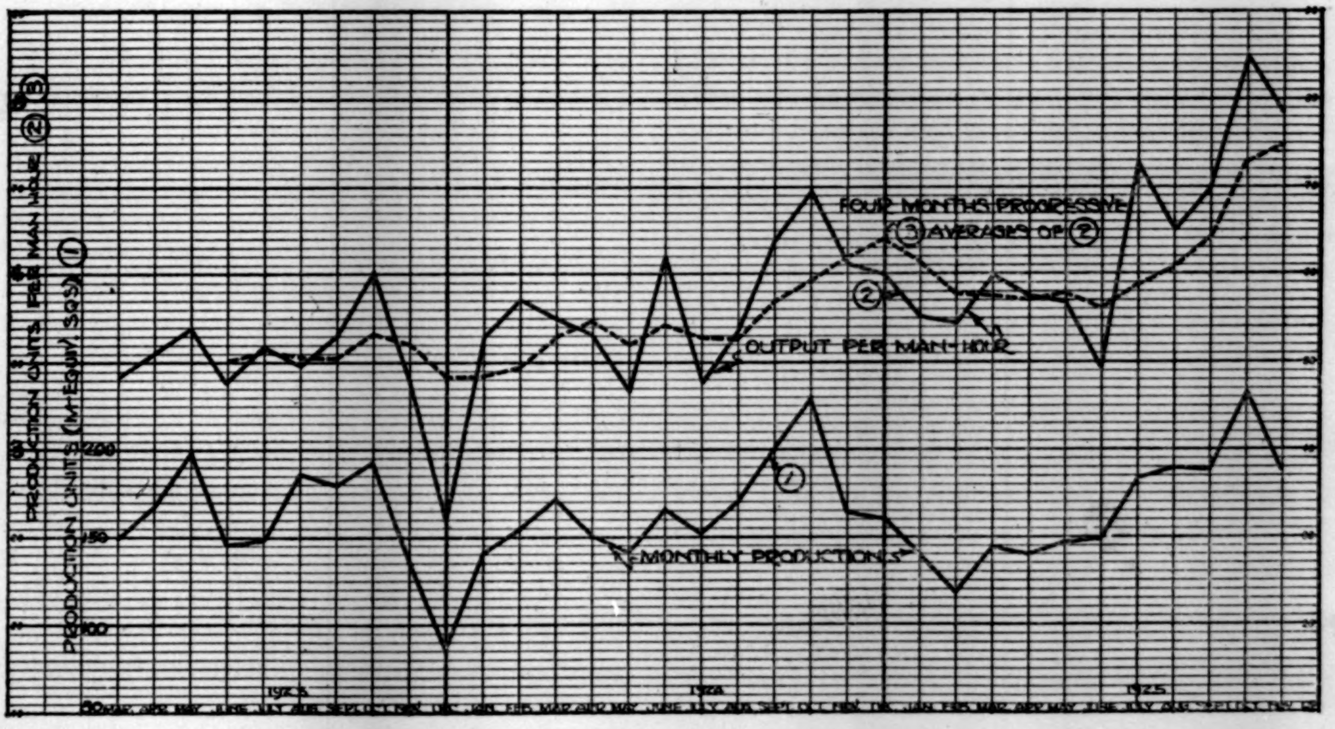

Figure 2

While we are not at liberty to give actual values of savings in dollars, we can say that we estimate the value of the savings on labor cost alone amounts at present, on the average month's business, to about four times the current monthly expenditures for carrying on this work.

In order to indicate how much of the increased output per man-hour is traceable to increased volume of output and how much to the result of our efforts towards elimination of labor waste in manufacturing processes, we devised a second chart (Figure 3) for showing these relations.

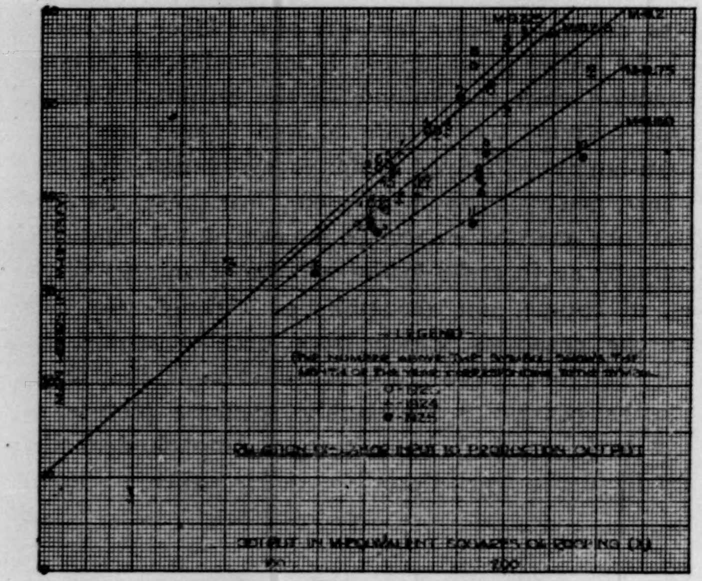

Figure 3

In designing this chart we started from the assumption that, for a plant maintaining the same degree of efficiency, the relation between production output and the total man-hours required for this production can be represented by the general equation,

$$y = mx + b, \text{ where}$$

"y" is the total man-hours required to get the production output of "x" units;

"b" represents the fixed man-hours; in our case time of watchmen, messengers, firemen, oilers, mechanics, etc.

"m" represents the number of man-hours of productive labor required per unit of output; for a plant operating persistently at a definite degree of efficiency, this value is constant.

In order to test whether this theory could be applied to our operations and to our scheme for measuring the monthly production output, we examined the figures for the last ten months of 1923.

The large circles show the relation between output and man-hours for each month, the month being designated by the figure above the circle.

The value of "b" was determined from records; it averaged for the period close to 10,000 man-hours per month, the maximum for any month being around 11,000, so that this item was fairly constant. It is interesting to note that our work of trying to eliminate waste has not noticeably increased this item, as we expected that it would; we therefore have hopes that we shall ultimately decrease it.

We then drew the line (the heavy line)

$$y = 0.218x + 10000$$

as expressing with reasonable accuracy the relation between man-hours and production output for our operations and organizataions in 1923.

In this equation the value of m (0.218) may be considered as the measure of labor efficiency in the direct production operations. And we have assumed that it gives us an indication of the value of the results accomplished by the work which has been described by Mr. Piacitelli.

All points which fall below the line

$$y = 0.218x + 10000$$

therefore indicate that this work caused an improvement over the average conditions existing in 1923. The relative amount of the improvement is shown, roughly, by the distance of the point from the lines marked $m = 0.2$, $m + 0.175$, etc.

It will be noted that all points for 1925 are well below this line, and generally below the points for 1924. This in spite of the fact that the volume of output in 1925 was lower month for month than in 1924.

The point for October, 1925, appears to be much better than any of the others for the year. This is not, however, an accurate portrayal, because it happened that during this month there was an unusually large production of those products which require the least amount of productive labor. It should be remembered that we claim no great accuracy for these charts and for our entire system of measuring the value of this work, but that they are intended to visualize only the general features and trends of the results accomplished. We have found them effective in convincing executives of the value of this work, which is the purpose for which they were intended. And we think that this should make them of interest to this meeting.

The February Meeting

Union-Management Cooperation in the Railway Industry

IT IS with genuine satisfaction that the Taylor Society announces the special meeting to be held in the Engineering Societies Building the evening of Friday, February 5. The subject-matter of discussion and the distinction and authority of the speakers promise a session of unusual importance and interest.

In the spring of 1925, the Society put on record (June, 1925, Bulletin) a case of union cooperation in better management in a small plate-glass manufacturing establishment in Manhattan. At the meeting of December, 1925, William Green, president of the American Federation of Labor, delivered a noteworthy address, printed on page 241, on labor's attitude towards cooperation in developing better management. At the February, 1926, meeting which has been announced, there is to be put on record a definitive statement of union cooperation in management on the railroads.

Problems, methods and detail results will be discussed by Otto S. Beyer, Jr., the consulting management engineer chiefly concerned; labor's appraisal of results will be presented by Bert M. Jewell, President, Railway Employees Department, American Federation of Labor; and the reaction of railroad management will be the subject of an address by Sir Henry Thornton, Chairman of the Board of Directors and President, Canadian National Railways. Meetings of the Taylor Society are an open forum and on this occasion, space should be at a premium in the auditorium of the Engineering Societies Building.

Reviews

Shop and Office Forms, Their Design and Use. By Wallace Clark, McGraw Hill Book Company, Inc., New York, pages 134.

In this work Mr. Clark has given us a most complete and thorough set of standard practice instructions for the preparation of factory and office forms.

The opening paragraph contains a bit of experience that many of us have had: "An engineer is considered a good designer if he develops a machine which produces good results when in use and the designer of forms must be judged in the same way. This is obvious, and yet, even in those companies where the best engineering knowledge obtainable is applied to the equipment of the plant or to the manufacturing processes, the same grade of knowledge is seldom applied to the drawing of forms."

Each of us has his special field of expertness. Within this field we may do good analytical work, but outside of it we seldom, if ever, apply the same type of original thinking. It is for this reason that Clark's book will be of such value to the factory or office manager who is called upon to design forms. The procedure is clearly and graphically shown and Mr. Clark had done the analyzing that most of us hate to do.

The opening chapter on The Purpose of Forms explains the reason for the appearance of those useless forms to be found in the routine of every office.

The second chapter deals with simplifying methods and writing instructions. The points to be remembered are listed and the logic of each explained. Samples of instructions are given but unfortunately the typographer has not indicated the difference between the author's comments and his illustrations. The result is that what really is quite simple and certainly lucid writing becomes difficult reading.

The chapter on The Design of Forms gives the author's standard methods which are logical and should result in a thoroughly satisfactory form.

The chapter on form printing contains much valuable information which should be kept available by everyone who has occasion to order printing.

Then follows a series of samples of forms for storeskeeping, production, cost keeping, maintenance and inspection and the sales department, with explanations of their purpose and use. These chapters are highly suggestive. "The shop methods outlined are those developed by the late Henry L. Gantt," we are told.

The final chapter, Control of Work Through Forms, is too brief to be either instructive or convincing.

Brevity seems, as a matter of fact, to be the only fault I can find with this very interesting and highly instructive book.

W. H. LEFFINGWELL[1]

Problems in Sales Management. By Harry R. Tosdal,[2] Ph.D., A. W. Shaw Company, Chicago, 1925, pages xxiv, 850.

The revised edition of Professor Tosdal's Problems in Sales Management illustrates the rapidity of the development of the technique of preparing problem books of this sort. This advance in three years is marked, and the general trend is in the right direction. This is a better book than the first edition, and subsequent editions may be expected to show even greater improvement. This rapid progress in the art of presenting business problems in this form is at once an evidence of the advantages and of the shortcomings of this kind of a book. The elements of even an apparently simple business problem are complicated and the preservation of a proper balance between presenting enough factors to make a problem and a befogging superfluity is not easy. The perfectly stated business problem has yet to be put into type; but as each year goes by, the new statements of them are better than the earlier ones. The method which the Harvard School has worked out for preparing and testing these problems before printing certainly is the best yet devised, as this revised book bears evidence.

---

[1] President, the Leffingwell-Ream Company, Management Specialists, New York.

[2] Professor of Marketing, Graduate School of Business Administration, Harvard University.

The edition under consideration contains a total of 279 business problems arranged on a plan covering eleven main headings, and 36 sub-heads. After a preliminary chapter on the "Field of Sales Management" the plan provides for the grouping of problems under such general subjects as Sales Organization, Sales Research and Sales Planning, Sales Policies Relating to the Product, Distribution Policies, Prices and Terms, Selling Methods, Management of the Sales Force, etc. Each of these has its subdivisions under which specific problems are presented, with no connective or interpretive matter unless the numbered titles may be said to serve that purpose.

Each of the main sections has a list of references to book and periodical sources which ought to be of great value to students desiring to pursue the specific topic farther.

One objection to all the case books thus far produced is their bulk. The material in this volume would appear less formidable if it were presented in four volumes instead of one or if it could be put into volume of half this size. But that, of course, is an individual opinion on a mechanical matter and does not take into account the problems of book publishing.

PAUL T. CHERINGTON[3]

Grpahic Statistics in Management. By William H. Smith, McGraw-Hill Book Co., Inc., New York, 1924, pp. 360.

Graphic Analysis for Executives. By Winfield A. Savage, Codex Book Company, Inc., 1925, pp. 138.

The author of the first of these books states that whereas most books on statistics have been written from the theoretical point of view, it is his purpose to show the relations of the principles of statistical and graphic practice in a manner which should enable the business man to acquaint himself with the standard forms and practices both in collecting and tabulating statistics and constructing graphs.

In covering, in only nineteen pages of Part I, what he considers to be the essential statistical principles for the business man, much has had to be omitted. The novice may find it difficult to comprehend the significance of these principles without more illustrations. The author takes up very briefly methods of collection and tabulation. Almost nothing, however, is said of the methods of analysis other than explanations of the simplest averages — the arithmetic mean, weighted average, mode and median.

In Part II many types of charts, diagrams, maps and curves are well presented, actual cases being reproduced and criticized by the author. Part III considers external statistics. The relative values of some of the more important available series are discussed as means of determining conditions present and future in the business world and in particular industries. In Part IV appear examples of graphical methods of presenting information for the chief executive, and charts which have been used with success in purchasing, production, sales and financial departments. The final chapter contains material on graphs for retail stores.

The author recognizes that the graph can only supplement and not replace tabulated numerical series, and that each situation presents a different problem for "graphic statistics in management." He urges no single system as a solution. A very successful effort has been made to avoid all technical language throughout the book. It is written primarily for, and should be of much assistance to, the business man who wishes to begin using graphical methods in his organization. Those already familiar with statistical and graphical technique will also find it a convenient collection of material which may contain the suggestion necessary for some particular problem.

The second book, which presents types of graphic charts for use by executives, is by the president of an enterprise which offers to supply "a system of graphic charts which will save you time and effort in keeping intimately in touch with your business."

GILBERT H. TAPLEY[4]

Can Business Prevent Unemployment? By Sam A. Lewisohn, Ernest G. Draper, John R. Commons and Don D. Lescohier. Alfred A. Knopf, New York, 1925, pages vi, 226.

It would have been very helpful if the collaborators had answered this question; it is disappointing to find that a book, which has been written apparently for the purpose of discussing the prevention of unemployment, fails to offer anything more than rudimentary, recognized and practiced methods of isolated and uncoordinated efforts at solution.

That the book follows so closely the publication of Feldman's "Regularization of Employment," a monumental and inspiring work, is unfortunate, as practically all the contents are found in the larger and more comprehensive work. There is nothing new in the book, but at that there may be some circulation for it among groups who have made but an elementary approach to the unemployment problem, because any compilation, if carefully made, saves considerable research on the part of the individual and encourages reading which otherwise would not be undertaken. For such elementary investigation the compilation will have its use, and should lead to the reading of the Feldman work.

---

[3] Director of Research, J. Walter Thompson Company. New York.

[4] Assistant Professor of Business Statistics, Amos Tuck New York.

It is quite logical that the legislative side should be touched on so strongly inasmuch as two of the authors hail from a state where an attempt has been made by the legislature to force industry to deal with the regularization problem. It will appear to many that there is an over-emphasis on the state and governmental side of the insurance problem, although the authors do not attempt to make out a case for this kind of solution. They merely report it. Whether the attack through legislation, following the Huber Bill plan of the Wisconsin Legislature, or the British Unemployment System, or the Ghent Plan, is the proper American attack on the problem is open to discussion. Many industrial executives are inclined to be skeptical of the value of legislative solution of some of the major industrial problems, and feel that there is a possible solution from within instead of without. In Chapter V instances are cited showing relief of unemployment by organized effort on the part of governmental agencies, while in Chapter II the Hills Brothers and Procter and Gamble cases which always make interesting reading, as well as others more or less well known, are related, and should furnish encouragement to industry at large.

It is regrettable that the authors have failed to grasp their opportunity to emphasize the value of an engineering attack upon the problem, through a comprehensive study of the total situation rather than the citation of isolated cases and legislative panaceas. They have missed a real opportunity to answer their own question, but more than that have failed to point the way sufficiently so that the book may be looked upon as a guide to the solution of the problem.

PERCY S. BROWN[5]

Welfare Work in Industry. By Members of the Institute of Industrial Workers; Edited by Eleanor T. Kelly. Pitman, London, 1925.

The English title of "Welfare Work in Industry" may be somewhat misleading to the average American reader who may not know that outside the United States the term "welfare work" includes much of what is covered by the American term of "personnel work." This volume has been prepared by a group of welfare workers in Great Britain, engaged in a variety of industries. Brief, compact, and written in a simple straightforward style, it is a handy book for those who want to get a general survey of the field, or guidance on the routine of the job. It includes a short history of the rise and development of the movement, the activities usually included in a welfare department, such as employment tests, record keeping, the introduction and training of the new worker, discipline, service activities, supervision of the physical plant, and the share of the welfare department in the development of works committees and adult education.

The authors show the tremendous importance which they feel should be laid to the selection of the right person to carry on the work, by making this the subject of two of the eight chapters of the book.

The welfare worker's need of an understanding of the underlying spirit of the work even more than of the routine, details and mechanics of the job, receives recurring emphasis and attention. This group of experienced welfare workers has evidently gleaned, from their wide contact in this field, the uselessness and actual mischief that may result when personnel or welfare work is introduced without a proper conception of the fundamental principles of the place of such work in the organization as a whole. A warning is given against "ready-made, cut and dried schemes, realizing that while fundamental principles remain the same the world over, their working out will vary enormously according to local conditions. A scheme evolved in the course of discussion and as a result of mutual agreement may be slow in developing and, when complete, less perfect technically than the ideal, but it will almost invariably be more vital, more workable, and less dependent on artificial stimulus than the ready-made article, largely because the people who have helped to draft it have seen visions and dreamed dreams in the process. Much time must be spent in laying foundations, and laying foundations is not usually a spectacular piece of work, but it remains true that a house built on the rock will endure."

Although describing methods in English organizations, much of this book is applicable to personnel or welfare work elsewhere. One is impressed with the fact that differences lie in detail and application and not in basic principles. It is cheering to read that "welfare work is now, by a very large number of firms, accepted as an essential part of their organization."

LOUISE C. ODENCRANTZ[6]

Industrial Ownership: Its Economic and Social Significance. By Robert S. Brookings, The Macmillan Company, New York, 1925, pages x, 107.

This economic treatise deserves attention at the hands of members of this Society because it presents the mature reflections of a thoughtful business owner and executive on problems of corporate structure and national economic policy. His area of discussion is a broader one than that usually made the subject for consideration under the caption "scientific management." Yet his entire treatment is of topics which are in serious need of treatment from a scientifically managerial point of view. And it is to be expected that the matters he treats will sooner or later force themselves upon the attention of executives who think scientifically about industry.

For no executive can ponder for long the problem of the effective distribution of his product, for example, without confronting the whole question of the organization of his particular industry, the distribution of plants in it, the volume of potential production capacity as compared with the volume of present demand, the reality of competition, the desirability of further consolidations, either horizontal or vertical, and the possibilities of cooperation among competitors.

---

[5] Works Manager, Corona Typewriter Company, Inc., Groton, N. Y.

[6] New York City.

All of these problems are recognized by Mr. Brookings, even if discussion of them is somewhat brief. His purpose in writing the book is apparently to set forth his conclusions as to the desirable form of corporate organization in the next few years in this country and the relation of these corporations to managers, workers and governmental bodies. His conclusions are out of line with current political policy, particularly in relation to the problem of governmental regulation. He is definitely against the anti-trust legislation in its present working out, and believes that definite encouragement to a greater degree of consolidation and of cooperative activity among competitors would be a welcome attainment.

His conclusions about the handling of the labor problem are briefly stated, but none the less interesting. He advocates the regularizing of work, or unemployment insurance; placing workers on boards of managers and doing everything possible to stimulate a more constructive attitude and policy in the trade union world. He believes that there is a marked tendency in the managerial world in the direction of a professional attitude made possible by the definite separation of management and ownership; and made possible also by the tendency for industrial earnings in the great majority of essential industries to lessen progressively as the risk element is reduced. His conclusion is that managers are more and more prompted by a professional attitude toward feeling a responsibility to workers and consumers as well as to stockholders. Corporation securities are tending to become much more widely held; capital accumulations through corporate surpluses are growing; and with economies effected by consolidations and cooperative methods, the combined savings available to increase the national income results, he believes, in a leveling up of the whole community standard of living.

This book is significant not because of this essentially optimistic view which Mr. Brookings takes, but because no thoughtful reader can ponder what he says about corporate structure without realizing that there has been an inadequate appreciation by managers and economists thus far of the possible uses of the corporate form in modifying the economic structure in a more democratic direction.

Mr. Brookings assumes that the increasing scatteration of stock ownership has only beneficial results; he raises none of the many difficult questions which this new phenomenon has in fact created. But his insistence upon certain next steps in corporate organization and in governmental policy toward industrial competition is one which must sooner or later require the endorsement of scientifically minded business men.

The whole delicate problem of the place of the stockholder in industry, whether that stockholder be investor, consumer or laborer, is virtually ignored. Nor is there any serious analysis of the benefits or dangers which will accrue when the workers in corporations have been able to accumulate a substantial minority of stock of their companies. A whole range of vital questions comes to mind that this book hardly shows awareness of.

There are a number of interesting experiments afoot in this country with different forms of stockholding and distribution (such as the Dennison Manufacturing Company, the Columbia Conserve Company, and the Philadelphia Rapid Transit Company); and it is this type of activity which is destined to throw light for all students of management and industrial organization upon possible modifications in corporate structure which promise to give expression to a more genuinely democratic sentiment than that typically found in corporations operated with absentee stockholders and non-stock-owning employees.

The essential problem of this book, therefore, is one which requires thought from the scientific management point of view, namely, the problem of the most economical method of securing capital for corporate undertakings and the most scientific way of determining which corporate units in any given industry should be encouraged to undertake new capital outlays. On these issues Mr. Brookings is silent, but his thinking carries the problem of industrial tendencies some fifteen or twenty years ahead of present practices, and this is no doubt a view far enough in advance for most of us to need to consider for the present.

ORDWAY TEAD[7]

Proceedings of the National Association of Office Managers Sixth Annual Conference. pp. 114.

This volume of proceedings includes papers and discussion presented at the conference in Akron, Ohio, June 11, 12, 13, 1925. Among the leading papers are "Office Management as a Profession" by W. H. Leffingwell, and reports of round table conferences on "Meeting the Personnel Emergency," "Work Reports—Limitations and Possibilities," "Reducing Waste," "Training Office Employees," and "Office Communicating Systems." Copies ($2.00) may be secured from the Secretary of the Association, F. L. Rowland, Lincoln National Life Insurance Company, Fort Wayne, Indiana.

---

[7] Department of Industry, New York School of Social Work.

NECROLOGY

Arthur Beane
General Manager, Slatersville Finishing Co., Slatersville, R. I.

Cecil D. Gregg
President, Evens & Howard Fire Brick Co., St. Louis, Mo.

Mrs. Florence Veeder Hoyt
Keane, Patterson Agency, New York.

Frank P. Maize
Master Mechanic, Portland Railway Light & Power Co., Portland, Oregon.

Edward Addison Wilson
President and Treasurer, B. O. & G. C. Wilson, Inc., Boston, Massachusetts.

Objects of the Taylor Society

The objects of this Society are, through research, discussion, publication and other appropriate means:

1. To secure—for the common benefit of the community, the worker, the manager and the employer—understanding and intelligent direction of the principles of administration and management which govern organized effort for accomplishing industrial and other social purposes.

2. To secure the gradual elimination of unnecessary effort and of unduly burdensome toil in the accomplishment of the work of the world.

3. To promote the scientific study and teaching of the principles governing organized effort, and of the mechanisms of their adaptation and application under varying and changing conditions.

4. To promote general recognition of the fact that the evaluation and application of these principles and mechanisms are the mutual concern of the community, the worker, the manager and the employer.

5. To inspire in labor, manager and employer a constant adherence to the highest ethical conception of their individual and collective responsibility.

Membership

The membership of the Society comprises Members, Junior Members, Fellows, Honorary Members, Life Members, Firm Members, Contributing Members and Student Associates. Application for membership should be made on a regular form which may be secured from the Society. New members may be elected directly to the grades marked*.

1. **Member*: An individual interested in the development of the science and the art of management as engineer, executive, operative, scientist, investigator or teacher. Minimum age 28. Initiation Fee, $15. Annual dues including subscription to the Bulletin, $20.
2. **Junior Member*: A younger member. A Junior Member may become a Member without payment of additional initiation fee at 28 years of age and must change to Member at 30 years. Initiation Fee, $5. Annual dues including subscription to the Bulletin, $10.
3. *Fellow*: A member elected Fellow in recognition of distinguished contribution to advancement of the science and the art of management. Annual dues including subscription to the Bulletin, $20.

   For any of the above grades a person engaged in educational work, state service, government service or the service of any other non-commercial enterprise of an eleemosynary nature shall pay one-half the initiation fee and one half the annual dues of the grade to which elected.
4. *Honorary Member*: A Fellow, over 50 years of age, who has rendered exceptionally distinguished service in the advancement of the science and the art of management.
5. **Life Member*: Any Fellow or Member who has prepaid all dues by the payment of $500.
6. **Firm Member*: A firm or organization interested in the advancement of the science and the art of management which desires to make the service of the Society available to members of its organization. A firm member designates two representatives (who may be changed from time to time at the organization's discretion) who have all the rights and privileges of membership except the right to vote and to hold office. Annual dues, including two subscriptions to the Bulletin, $40.
7. **Contributing Member*: Any individual, firm or organization desiring to promote the work of the Society by an annual contribution of $100 or more. A contributing member has all the privileges of personal or firm membership, as the case may be, including one subscription to the Bulletin for each $20 contributed.
8. **Student Associate*: A regularly enrolled student of management in any school of engineering, business administration, commerce or arts, of collegiate rank, or a graduate of such institution who has applied for membership not later than one year after graduation, elected upon recommendation of the instructor in charge of management courses. A Student Associate may become a Junior Member, without payment of initiation fee, any time after graduation and must become a Junior Member at the age of 25. Annual dues including subscription to the Bulletin, $3.

All dues are payable in advance, either annually or in semi-annual installments. The fiscal year is November 1 to October 31. Members elected other than at the beginning of the fiscal year are charged pro rata (quarterly) for the first year.

Principles of Teaching[1]

By **PAUL H. HANUS**
Professor of Education, Emeritus, Harvard University

I. In my teaching, are my aims, ultimate and immediate, clear in my own mind?

Ultimate aims: What ought the students to get out of this course (every course) I teach?
Immediate aims: What point or points should be made today in order to make progress toward the realization of my ultimate aims?

II. Do I avoid talking too much or too little?

There must be as much learning as teaching. The teacher should stimulate relevant inquiry and discussion, and participate in them; but the teacher must remember that students learn only *by their own efforts*. The teacher is guide, not purveyor.

III. Do I make appropriate use of the students' previous experience and instruction?

New facts or principles (experiences) are assimilated only when they are related to past related experiences.

IV. Do I make good use of illustrative material?

Much of this material should be collected by the students as well as by the teacher.

V. Am I sure that my students react vigorously to my instruction?

Are they passive or alert during the class exercises? Do they ask pertinent questions? Do I get pointed answers or discussions in response to my questions? Do they discuss my expositions or points of view among themselves?

VI. Are most of my students usually interested in the classroom work?

The secret of interest is their own activity. Keep most of the class busy most of the time. If classes are not interested the fault is with the teacher.

VII. Do I habitually read the best contemporary literature in my field?

As soon as the teacher stops growing he should stop teaching. He must be both a reader and an observer.

VIII. What tests do I employ to assure myself that my students are achieving the results at which I aim?

Such tests must themselves be constantly tested.

---

[1] Outline of an address, New York, December 2, 1925, at a meeting of teachers of management held annually under auspices of the Taylor Society.

Compliments of the Taylor Society

LRBAg27